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We have to thank our neighbor, the "New York Times," for an appreciative notice of "The Mineral Industry," Volume VII, which is especially welcome as coming from an authority always careful and judicious in its criticisms. One paragraph especially we have to quote:

"Fiction may give pleasure to some of the readers of 'The Times Saturday Review,' but no romance can be more entertaining than is this volume, devoted to the explanation of what is the true richness of the earth, or how mankind is ever toiling, under the tropics or in the arctic, to bring to the surface the hidden spoils."

The words of the "Times" reviewer are both pointed and true; the history of the growth and progress of our great and diversified mineral industries is far from being a mere recital of dry statistics. It is, in many ways, as interesting as a romance, indeed far more so, as one realizes how intimately all human progress is linked with and dependent on the arts of mining and metallurgy, which are represented in the yearly volume of "The Mineral Industry."

The members of the American Institute of Mining Engineers who attended the San Francisco meeting, met with an enthusiastic welcome and received a great deal of attention, as was to be expected, in the chief city of a State so largely interested in mining as California. The time of the members was, in fact, so much taken up that very little was left for the actual business of the meeting. This was compressed into three brief sessions. Nearly all the papers submitted were read by title only, and of the few that were read, either completely or in abstract, only one was discussed at all, and that in a very brief and inconsequent way. There was no time for the discussion, which was once supposed to be the chief object of these meetings. If more such meetings are held, it will soon be necessary to choose between business and outside attractions; and if the business is to be carried on entirely by written and printed discussions, it might be well to dispense with the meetings altogether and the expense to the Institute and individuals which they involve.

At regular intervals reports are circulated in the press that the famous Dowlais Steel Works and Collieries in Wales are to be disposed of by their present owners. A year or so ago it was rumored that they were to be sold to a group of American iron-masters, and the latest variation is that a public company is to be formed and the majority of the shares offered to the public. From inquiries which we have made it seems improbable that Lord Wimborne contemplates such a step, and if the properties are sold by him to a limited liability company it will only be for the purpose of simplifying family arrangements and giving a permanent interest to some of his managers. The Dowlais properties are among the most valuable in Great Britain, and the works are always kept up to date and are admirably managed. They were first established by Mr. Guest, the grandfather of the present Lord Wimborne, and the ownership has always been kept exclusively in the Guest family. The properties of a similar kind belonging to the Pease and the Bell families have been recently offered to the British public and the inference that the Dowlais properties were to follow suit was easily made.

The situation in the Transvaal is now passing beyond the doubtful stage, and it seems impossible to avert a conflict. The London dispatches hold out some hopes of further negotiation, but the advices from South Africa report the South African Republic and the Orange Free State as fully on a war footing and ready to begin hostilities at once. The Boers have the advantage of position, and will be able to do immense damage, if they decide to injure the mines. It is reported now that the mines on the Witwatersrand have been seized and closed. All British subjects have been ordered to leave Johannesburg.

Even in the hoped for event that a peaceable settlement should be reached, it is evident that the gold production of the Transvaal will be seriously affected for this year, since it will take some time to start mines and mills again and to collect the force of native laborers which have been widely dispersed. If the war goes on, as now, unfortunately, probable, the active operation of the gold mines will be stopped for a long time; with the possibility that large sums will have to be spent to restore mines and mills to working condition after the conflict is over. The prospect for stockholders in the South African companies is certainly not an encouraging one just now.

An industry which has been materially benefited—perhaps saved from extinction—by the general prosperity and the rise in prices of most products, is the Scotch shale-oil manufacture. For years the distilling of oil from shale in Scotland has been carried on under difficulties. At one time it was a profitable business, but the strong competition and the low prices at which petroleum has been sold in Great Britain have, for several years past, taken away the surplus over expenses and forced the sale of oil at prices which could not pay. Notwithstanding the

close economy exercised in manufacturing, the companies were forced to reduce their dividends and finally to pass them altogether, while several of them last year did not earn enough to cover their expenses. Early in the present year, however, the prices of American illuminating oil began to rise, and some time ago they reached a point which left a fair profit on shale oil. There has been also a corresponding rise in the price of paraffin, which is an important item with the shale distillers; and this has still further strengthened their position. As only a small part of the output is covered by yearly contracts, the manufacturing companies are getting nearly the full benefit of the rise; and this means much to them. The shale-oil industry is noted for the care with which it has been carried on, the close attention to details, and the readiness to adopt improvements; all signs of intelligent management.

The Institution of Mining Engineers of Great Britain is a federation of local societies, which have done some very creditable work in their special lines. Unfortunately the managers have lately, for some unexplained reason, seen fit to adopt a narrow policy in certain directions, the evidence of which is the issue of a notice that if the newspapers or technical journals print any but the briefest abstracts of papers read at the meetings, they will be prosecuted for an infringement of copyright. The English technical papers resent this action, very naturally, and the London "Engineer" states that it will hereafter refuse to notice the proceedings in any way. The action is the more surprising, as all the great British technical societies—like our own—give every opportunity for the widest publicity. We are constantly in receipt of advance proofs and other courtesies from the Iron and Steel Institute, the Institution of Mining and Metallurgy and other well-known societies. What is to be gained by thus practically limiting the circulation of papers read to the members of the Institution is not clearly apparent. It is said that the policy does not meet the approbation of the members generally, though we have heard of no protest against it. It may be that the narrowness of which this rule is a symptom extends to other matters, and is causing dissatisfaction, for at a recent meeting of the Institution in Sheffield reference was made in reports presented to a "regrettable decrease in the number of members." The sooner the Institution reconsiders its ill-advised action the better it will be for its future prosperity.

The zinc smelters in the Joplin Region are again making an effort to break down the influence of the Missouri & Kansas Zinc Miners' Association. They naturally wish to return to the old condition of affairs when the miners were practically at the mercy of the ore buyers and had to accept their prices. It is claimed by the smelters that there is no profit for them with ores at present prices. They are seeking to support this by the threat of closing down their furnaces, and have actually stopped some of them to emphasize their claim. On the other hand the association maintains the fairness of its present scale, and so far the miners generally have shown a disposition to support it. They have evidently made up their minds that their safety is in united action, and are not disturbed by the smelters' action. Perhaps this disposition has been strengthened by the consolidation of properties which has been going on for some time, and by the many opportunities presented for selling mining tracts and leases. The fight is rather an interesting one, with the chances at present rather in favor of the miners. It must be said that, with spelter selling at over 5½ cents in St. Louis, the situation of the smelters does not seem to be a bad one, even if they have to pay $43 or $44 a ton for ores at Joplin.

The latest move is an order from the Missouri & Kansas Association for a general shut-down of the mines and concentrating plants. This has cut off for the present nearly 85 per cent. of the ore production, as the members have generaly complied with the order.

The speculation in tin, which has now been carried on for several months, has been a very successful operation. Aided by what the market considers short stocks, the managers of the movement have worked the prices of the metal up to the highest point known for many years. Spot tin is now selling in London at £150 7s. 6d. a long ton, with a backwardation of 12s. 6d. on futures. In New York, owing to larger stocks held, the quotations are somewhat below the London parity; but metal for early delivery has sold for 33¼ cents a pound, a price heretofore unheard of. Under present conditions high prices are likely to hold for some time to come. It is to be noted that there has been one considerable change in the trade. Five years ago the United States bought its tin in London and Amsterdam, but so far this year the reports from the Straits Settlements, the most important source of supply, show that 56.2 per cent. of the shipments were to this country direct. Our market is no longer entirely dependent on London, but makes its own quotations; and while they are to some extent governed by the foreign prices, there is often a considerable variation.

High prices are very apt to stimulate production, and we hear of movements which will increase the output of Straits tin largely, and probably that of Banka and Billiton in the Dutch East Indies also. In Australia the tin mining companies have started new explorations, and there is fair prospect of an increase in the production, which has been falling off for several years past. A little time is required, though not very much, since tin is so largely obtained from alluvial deposits and its smelting is a comparatively simple matter. It is quite probable that by the close of the year there will be a marked increase in the production of the metal. In that case there will be a fall in prices; but with the present demand the quotations are likely to continue still considerably above the level of the years from 1896 to 1898.

THE UTILIZATION OF BLAST FURNACE GASES.

The utilization of the gases produced in the blast furnace for the production of power through the medium of the gas engine has now passed through the experimental stage in Belgium and Germany. Engineers there are accepting it as an established fact, and are planning and erecting plants on a large scale. At the great works of the John Cockerill Company at Seraing, in Belgium, where the first experiments in this direction were made, a plant rated at 3,000 H.-P. is nearly completed, and installations of equal or greater size are under construction at the blast furnaces at Hoerde and Differdange in Germany. That furnace owners and managers are ready to invest their money in such plants is evidence of the confidence which they feel in the results. Some account of these plants will be found on another page.

The latest contribution to the literature on this subject is found in a paper published in the "Revue Universelle des Mines," written by Mr. H. Savage, engineer of the Cockerill Company, who speaks with authority, since the earliest experiments in the use of blast furnace gases were conducted under his charge. At Seraing the little experimental engine running a small dynamo has been succeeded by a motor of 250 H.-P., which is now in successful operation; and the plant of 3,000-H.-P., above referred to, will soon be at work. The statements presented in Mr. Savage's paper are based on results obtained in actual practice, and should be accepted accordingly.

The theoretical objections to the use of blast furnace gases which have been urged by some British and German engineers, have been found, in actual work, to have but little weight. The first and most important of these was the large quantity of dust in suspension carried over by the gases as they leave the stack. This seemed, at first sight, a serious difficulty; but experience has shown that the heavier particles are quickly deposited, and the gases can be freed from them by a very simple arrangement of passages and collecting chambers. There is left only the very light, impalpable dust, and the rapid movement and quick explosive action in the gas engine cylinders carries this forward with such force that in the 250-H.-P. engine at Seraing it has not been necessary to use any special precautions, and there has not been deposit enough in the cylinders or passages to cause the slightest trouble. In fact, less clearing has been required than in engines using ordinary illuminating gas, in which the parts often become clogged by the deposit of particles of bituminous matter.

At some of the new German plants it has been thought best to provide purifiers for the gas. The usual form adopted is the dry purifier, in which the gas is passed through cylinders filled with coke. In a few instances water is used in a fine spray for the purpose of separating the dust. It is not, however, considered necessary to use an elaborate purifier plant by those who have had the most experience.

Another objection, which was at first very strongly urged against the use of blast furnace gases, was their comparative poverty. This has not, however, been found an obstacle of any importance. With the proper degree of compression the working of the engines has been thoroughly satisfactory. In reality, a certain advantage is given to the designer, since there is, with the poorer gas, a less violent explosion, and the cylinders and valves wear better. In the size of the engine little difference need be made, since with leaner gas a lesser quantity of air is mixed, and the total volume passed into the cylinder is not increased.

The gas engine heretofore has been considered especially adapted to running dynamos, owing to the high speed at which it is usually operated, and to the advantages obtained by continuous running. At both Seraing and Differdange, however, the new plants include gas engines to run the blast cylinders. In these plants the cylinders are of large size, and are directly connected to the air cylinders. A fly-wheel is necessary, of course, but in the Seraing plant this is not of excessive size, weighing only 25 tons for the 500-H.-P. motors. It is expected that the engines will run at 80 revolutions a minute, and the blowing cylinders will be supplied with Riedler valves. At Differdange the motors are of the Oechelhauser type (described in the "Engineering and Mining Journal," August 26th, 1899, page 249); but at Seraing they are of

well known "Simplex" pattern. The operation of these blast engines will be watched with interest.

It has been suggested that if the power available in blast furnace gases is all utilized, there would be at most plants a surplus. This is most certainly not an objection. Where there are other works in connection with a blast furnace, the power supplied could, in most cases, be utilized. In others the transmission could be effected either in the form of electricity or by piping the gas itself, which is a very simple operation.

As we have said above, the use of the gas engine at blast furnaces is now past the experimental stage. We believe that by this means a reduction in the cost of producing pig iron can be effected which is not to be despised, even in this period of high prices; and our iron-makers should certainly look carefully into this matter.

NEW PUBLICATIONS.

"Report of the Superintendent of the State Land Survey of the State of New York." By Verplanck Colvin, Superintendent of the Survey, Albany, N. Y.; State Printers. Pages, 406; with maps and illustrations.

The State of New York is the owner of large tracts of land, chiefly situated in the northeastern part of its territory, in the area which may be roughly bounded by the Mohawk Valley on the south, the St. Lawrence on the north, Lake Ontario and Lake Champlain on the west and east. In earlier times these lands were little known; but in recent years the extension of lumbering operations and the establishment of summer resorts in the Adirondack Region have given these lands great value. At the same time the importance of preserving the great forest tracts around the headwaters of the Hudson and of the rivers running into the St. Lawrence was recognized. Owing to the imperfections of the early surveys and records, there was uncertainty as to boundaries and titles; lumbermen and others made encroachments on the State lands, and there was danger of a general despoilment of the region. These facts led to the passage of a law providing for a general resurvey of the State lands. Fortunately the work was placed in competent hands and under charge of Mr. Colvin a commencement was made of a work which has been one of the best and most thorough of its kind ever executed. The first object of the survey, of course, was to verify and establish the original boundaries, and this was no easy task. The methods used were adopted only after very careful consideration, and the results have fully justified the reasoning which led to their use.

The surveys were started from the original boundary lines, which were proved and tested, both by their connection with the shores of streams, lakes, etc., and other topographical features referred to in the ancient field notes; and also by a systematic examination of the old boundary line trees to ascertain the agreement of the marks made by the ancient Colonial surveyors with the marks actually found along the boundary lines, so that peculiar blazes upon the trees proved (by counting the annulars of woody growth) that the lines having the proper variation from the original magnetic bearings were the actual lines of survey of the Colonial period, since lost or confused by imperfect modern surveys, old trapping lines, etc. In this way the ancient boundaries were recovered, restored and monumented. The re-surveys then proceeded in accordance with the best scientific methods. The lines were thoroughly monumented with stone, and properly inscribed nickel-plated copper bolts set at numerous points in the native rock. Between these points the lines were retraced by transit traverse from monument to monument, starting with a known astronomical azimuth, so that every section of the boundary lines, thus restored and monumented, is now determined in its true astronomical bearing and imperishably marked. The linear measurements between the boundary line stations, were then made with steel tape from station to station; the tape being made exactly horizontal; and measurements also made with vertical ordinates, so that by both horizontal and vertical measurements every contour, commencing at a bench mark of lines of levels carried from the tide water at New York Harbor, proceeds systematically to other bench marks determined by this State land survey. Thus the contour lines of the maps are actual elevations by level and measurement above tide. The intermediate contours are put in by the hand-level system, which was successfully employed by R. P. Rothwell in surveys in the coal mining districts of Pennsylvania; starting from one bench mark of determined elevation and touching upon another, so as to close far within the limits necessary. The interior surveys of the townships were made by careful transit traverses, intersected by lines of levels. Thus the elevations of the mountain passes and summits, gradients of valleys and streams were all determined with precision, and acurately located.

The basis of the work was the thorough trigonometrical survey of this department, made with large theodolites reading to tenths of a second of arc, and determining numerous points throughout the territory surveyed; which cuts—in every few miles—upon the boundary lines and transit surveys, so as to check and prove the azimuths of the several lines. In this way the initial azimuths, carried from station to station, were tested, at frequent intervals, by the geodetic azimuths, and a perfect control over the land survey work was maintained by the geodetic measurements; forming a complete and harmonious system of surveys. The result is that the surveys are probably the most accurate ever made of forest lands in America; and, the topographical work being based upon such perfectly verified primary stations and monuments at frequent intervals, is equal or superior to the work of the British ordnance survey of the mountainous districts of Great Britain and invaluable in any location for any class of engineering work, for forestry purposes, for roads, bridges, highways, etc., without any further surveys.

It has been the purpose, and is the claim, of this survey, that this work has been done in such a thorough and substantial manner, that no surveys of the territories which have been mapped by this department, will ever need to be surveyed again. The advantage of such results, of so thorough and reliable character, is incalculable. That which is done for all time is, perhaps, novel in human—at any rate in American—experience, and methods and computations fail in any way to express the value of the results. In the midst of a perfect chaos of inaccurate surveys and disputed boundary lines, which permitted trespassers to make all sorts of claims against the State and private persons, and often enabled them to escape penalties for thefts of timber and the destruction of the forest, these new and permanent surveys of great areas, are like oases in the desert; points of safety and surety, from which vantage ground all that can be hoped for or desired in the future must begin or emanate. As these surveys are completed, and numerous sections of boundary lines enclosing tracts of 25,000 or 30,000 acres are made sure, the surveys of surrounding territories become more simple and easy of accomplishment as they are limited by these absolutely true boundary lines, and false statements cannot successfully be made, or fraudulent claims advanced, to hinder the more rapid extension of surveys into other adjacent districts. The utility of this class of work in a State like New York (where land possesses such a high valuation), is incalculable, and the State is to be congratulated upon these results.

In the comparison with the alleged "topographical" surveys by the United States Geological Survey, which are of the crudest description, made on sketch boards as pencil sketches, where neither the alidades nor the sketch-boards have levels, and where the topographer does not locate a single boundary line of surveys, but only sketches that which he sees or what some hunter or trapper or guide may tell him; these permanent results of actual restoration of the lines of State lands and property by a great and systematic survey, are most satisfactory.

Some of the large maps of the townships are already engraved, and other maps and volumes of reports will speedily follow, giving details of the surveys and decisions in regard to certain disputed boundary lines, and more recent surveys, up to the present year. Special attention should be called to the station maps in this volume, and the methods of reduction of the traverse lines, by which the magnetic declination is determined at every station, and also the variation of the needle since the original survey along the township lines; of which an example is given.

Besides these station maps, which are admirable specimens of work, the volume is illustrated by a number of half-tone reproductions of photographs, which give an excellent idea of the country. The camera has evidently been judiciously used as an aid to the surveying parties, and the results, as here shown, are most satisfactory. The report is just what we should expect from those who have carried out so thorough a work; it is a clear, plain description of the work done, written with full comprehension of those details which are of interest to the engineer. It is a valuable contribution to engineering literature, and the volumes still to be published will be looked for with interest.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supersede review on another page of the Journal.

"The Production of Tin." By Henry Louis. London, England; "The Mining Journal." Pages, 40; with map. Price (in New York), $1.

"Poor's Manual of the Railroads of the United States, 1899." Thirty-second annual number. New York; H. V. & H. W. Poor. Pages, 1,502. Price, $7.50.

'Gold Dredging in Otago, New Zealand." Otago, N. Z.; published by the Otago "Daily Times." Pages, 100; with map and illustrations. Price (in New York), 50 cents.

Geological Survey of Canada: "Mineral Resources of the Province of New Brunswick." By L. W. Bailey. Ottawa, Canada; Dominion Printers. Pages, 130; with maps and illustrations.

"Annual Reports of the Ohio Society of Surveyors and Civil Engineers: 1898 and 1899." C. N. Brown, Secretary. Columbus, Ohio; published by the Society. Pages, 232. Price, 75 cents.

"Tables of Squares; Containing the True Square of Every Foot and Fraction Thereof from 0 to 100 Feet. Advancing by One-Sixteenth of an inch." By John L. Hall. New York; the "Engineering News" Publishing Company. Pages, 102. Price, $2.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials will only be published when so requested.
Letter should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents

A Unique Strike.

Sir:—A rather unique and very amusing strike in embryo occurred in Rossland September 25th and 26th, when the miners employed by the War Eagle Company waited on the general manager with the plaint that they could no longer get four meals a day at the War Eagle Hotel. This hotel, built for the comfort and convenience of the men, has, until the last three days, supplied meals at all hours of the night. The night shift coming up for supper, and the 11 o'clock men coming off shift got a meal before going to bed. Three days ago the hotel management decided to close the dining room at night, let the night shift carry buckets and not give the men coming off shift at 11 a meal before going to bed. Herein lies the cause for complaint. These men, who, with very few exceptions, were in the habit of getting up for breakfast between 7 and 8 o'clock, threaten to boycott the hotel because they will no longer be able to work in a fourth meal every day. It is perhaps

needless to say that the management did not comply with the request and these men are now looking for boarding houses downtown, where they may have the luxury of an extra meal without extra charge.

This may sound something like a fairy tale; but it is quite true, and is rather a comic opera strike. F.

Rossland, B. C., Sept. 26, 1899.

The Assay of Iron in Lead Ores.

Sir: In your issue of September 9th Mr. L. J. W. Jones comments on my abstract in "The Mineral Industry," Volume VII, page 451, of the Zimmermann-Reinhart method for titrating iron with potassium permanganate in a hydrochloric acid solution. I should have replied in the following number of the "Journal," but could not very well get at the records of students' work in the analytical laboratory of the Institute of Technology before the beginning of the term. I find now that so far the method has been used only in the iron ores, and gave excellent results. I am glad that Mr. Jones has called attention to his unsatisfactory experience in determining the iron in ores of the kind that commonly have to be analyzed at lead plants. Other chemists at smelting works will thus be prevented from wasting their time by experimenting in the same line. His objections will have another good result, that the method will be systematically tried on various ores in our analytical laboratory, and, if possible, perfected so as to give it a more general application.

Boston, Mass., Oct. 3, 1899. H. O. Hofman.

VENTILATING TUNNELS.—An exchange says that Prof. Mosso has been recently experimenting on smoke prevention in a long tunnel not far from Genoa, Italy, through which some 200 trains pass a day. Two methods were tried: First, large steel cylinders, 5 ft. by 2 ft., were filled with air at 750 lbs. pressure and placed in a locomotive tender. The air was allowed to escape in the tunnel, with the object of blowing out the smoke. The second method was with compressed oxygen, which was supplied to the furnaces of the engines with the idea of improving the combustion. Both methods are reported to have been partially successful.

AN INDIAN TUNNEL.—The construction of a tunnel under the Hooghly River at Calcutta for the East Coast and Bengal Nagpore Railways is under consideration. One of the plans published in "Indian Engineering" proposes to construct two iron lined tunnels, each 17 ft. diameter on the inside, and 10 ft. apart in the clear. The river at this point is about 36 ft. deep at low water, and the tunnel will pass 12 ft. below the bed of the river. The length of the tunnel proper is to be 6,875 ft., in three sections. The middle section, or that underneath the river, is 1,290 feet long, and nearly level, and connects with a stretch 2,835 ft. at one end, and 2,750 ft. at the other end, both of which are on an incline of 2 per cent. The approaches at either end will be 1,500 ft. long and consist of a cut roofed over.

SEMET-SOLVAY BY-PRODUCT COKE OVENS IN ENGLAND.—The London "Colliery Guardian" gives the following as the net return from 100 tons of English coal treated in Semet-Solvay by-product ovens: 70 tons coke at 14s. a ton (less cost of raw coal, 4s. 9d. a ton, and labor, stores, etc., 2s. 9d. a ton), £15 12s. 6d.; steam raised (equivalent to that produced by 13 tons coal at 3s. 6d.), £2 5s. 6d.; tar, 4.75 tons at 20s., £4 15s.; sulphate of ammonia, 1.25 tons at £7 15s. (less £3 for acid, labor, etc.), £9 13s. 9d.; light oil, 303 gals., at 5d., (less labor, chemicals, etc.), £4 16s. 3d.; total return, £37 3s. Nothing has been allowed for establishment charges or for depreciation. The finished benzols have been calculated in the terms of light oil for the sake of convenience, and the figures are from actual practice. The net revenue per oven per annum, in by-products at present prices, is, therefore, 1,750 tons at £19 5s. per 100 tons, or a net return of about 50 per cent. on the recovery or chemical portion of the plant—that is, on the sum spent to recover the by-products.

ARMORED CONCRETE.—Armored concrete, that is to say, concrete in which a layer of steel or iron rods is embedded, has of recent years been largely adopted on the Continent, and experience has conclusively shown that the resistance of the concrete mass to fracture is increased in a really extraordinary degree, says London "Engineering." A rational explanation of this augmentation of strength has, however, been wanting, the rules used in proportioning hitherto having been purely empirical. Some recent investigations of M. Considere go far, however, to fill this void, his experiments having been specially designed to demonstrate the real nature of the assistance rendered by the metal reinforcement. Beams of armored concrete were accordingly subjected to pure bending, shear being eliminated, and their behavior carefully watched. It was thus shown that the tension surface of such reinforced beams was capable of taking a stretch without fracture fully eight times as much as the stretch at rupture of quite similar beams of unstrengthened concrete. This fact was confirmed by experiments in direct tension. Here the stretch of an armored rod was 20 times as great as that corresponding to the fracture of simple concrete rods. It would thus appear that the adhesion of the concrete to the iron is so strong that the two materials work together as one. The weakest section of the concrete, therefore, cannot yield, since it is held together by the iron, and thus no cracks are observed even when the total stretch is many times that sufficient to rupture concrete pure and simple. The tests further show that cracks only make their appearance when the metal inside is strained up to its elastic limit. These facts would seem, therefore, to admit of the calculation of the strength of such reinforced concrete being put on a rational basis. Knowing approximately the elastic modulus of the concrete, it becomes possible to fix the position of the neutral axis, and thus to proportion the whole, so that the compressive stress on the concrete shall not exceed the ordinary safe limit, while at the same time the quantity of metal used on the tension side of the beam is such that the stress on it is kept well below the elastic limit.

MINERAL PRODUCTION OF NEW SOUTH WALES.

The annual report of the New South Wales Department of Mines for 1898 has been published. The report shows that, in spite of the drawbacks encountered by reason of the severe and almost continuous drought experienced during the last few years, the mineral resources of the Colony have been energetically developed wherever practicable. The estimated aggregate value of the mineral output for the year was £4,866,997, being £138,723 in excess of that for the preceding year. Under the adverse circumstances alluded to it is gratifying to be able to note any increase at all.

In the various metalliferous mining industries 30,311 men found employment, and in the coal and shale mines 10,519, as against 31,229 and 9,979 respectively in the previous year. The total number of men employed in all classes of mining in the Colony during 1898 was 40,830, as compared with 41,208 in 1897, showing a decrease of 378. This, however, is explained by the large decrease which has taken place in the number of alluvial miners, there being no fewer than 589 Europeans and 138 Chinese less than in 1897. The great scarcity of water experienced throughout the various mineral districts has no doubt had its effect in diminishing the numbers engaged in alluvial work, but it is thought that the decrease noted has to a large extent been caused by a returning general prosperity, which has absorbed in other and more stable occupations a large number of alluvial fossickers. It is satisfactory to note that in other branches of the mining industry there has been an all-round increase in the number of men employed.

River-dredging for gold, an industry which has grown to important dimensions in New Zealand, and which has of recent years materially increased the annual gold output of that Colony, is now receiving much attention from speculators in New South Wales also. Large reaches of the rivers and creeks flowing through auriferous country have been taken up for this purpose, or have been applied for. Active operations have already been started on the Macquarie River, and a substantial increase in the gold yield is confidently looked forward to from this source. The copper and tin deposits of the Colony are also receiving increased attention. Capital is being liberaly invested in this industry, and it shows indications of a probable expansion which, under judicious management, should ultimately prove both profitable and progressive in character.

Exclusive of coal, the following are the quantities of the principal minerals produced during 1898, as compared with the production of 1897:

	1897.	1898.
Silver-lead and ore, tons	289'018	398,569
Lead (pig), tons	32	1,718
Silver, oz	150,005	533,059
Gold, oz	302,817	340,493
Copper (ingots, matte) and ore, tons	5,922	5,832
Opals, value	£95,000	£80,000
Tin (ingots and ore), tons	1,155	895
Shale, tons	34,090	29,689

The aggregate value of the mineral product of the colony, to the end of 1898, amounts to £127,895,852.

The output of coal for 1898 again shows a substantial increase over that of the preceding year. The output for 1897 was the largest recorded since the opening of the first coal field in 1829, but that of last year exceeded it by 322,659 tons, the total output for 1898 being 4,706,251 tons, as against 4,383,591 tons in 1897. There was an increase in the home consumption of coal of 227,487 tons, and an increase in the intercolonial exports of 130,080 tons, but the foreign exports fell off to a slight extent, the decrease being 34,907 tons, representing about 3 per cent. on the volume of foreign exports for 1897.

CYANIDE OF POTASSIUM IN RUSSIA.—The Russian Government has decided as an experimental measure, and until further notice, to allow cyanide of potassium exclusively for use in the Siberian and Oural gold mining industry, to be imported duty free.

EUROPEAN BLAST-FURNACE OWNERS.—The largest single owner of blast furnaces in Europe is said to be the Austrian Alpine Montan Gesellschaft, which owns 32 furnaces. These are mostly of small size, however, and run on charcoal iron. William Baird & Co., Glasgow, Scotland, own 29 furnaces, including the works at Gartsherrie, Eglinton, Lugar and Muirkirk, Scotland.

THE COAL SUPPLIES FOR INDIAN RAILWAYS.—Of late years the production of coal in India has been steadily increasing, and the Indian railway companies have consequently been becoming less and less dependent upon other countries for their supplies of fuel. From 2,562,000 tons in 1894, the Indian output of coal had increased in 1898 to 4,569,000 tons, and in the latter year, out of a total consumption of coal by the Indian railway companies of 1,452,000 tons, 1,414,000 tons were of Indian production and only 38,000 tons were imported from England. As compared with 1897, their consumption of Indian coal increased by 6.79 per cent., while that of English coal decreased by 21.25 per cent., and at this rate of displacement it will not be long before the companies cease to draw any of their supply of fuel from abroad.

MINERAL IMPORTS AND EXPORTS OF SPAIN.—The imports of mineral fuel into Spain for the seven months ending July 31st were 940,172 metric tons coal, and 136,056 tons coke. Imports of metals included 1,072 tons pig iron, 3,497 tons wrought iron, 12,876 tons steel and 1,050 tons tin-plates. Exports of minerals are reported by the "Revista Minera" as follows, in metric tons:

	1898.	1899.	Changes.
Iron ore	4,050,118	5,078,304	I. 1,028,186
Copper ore	511,439	593,929	I. 82,490
Zinc ore	38,901	54,468	I. 15,567
Lead ore	5,535	6,163	I. 628
Salt	124,255	217,062	I. 92,807

Exports of metals included 22,806 metric tons pig iron (24,237 tons in 1898); 15,880 tons copper (17,592 tons in 1898); and 91,165 tons lead, against 112,496 tons in 1898.

PLANTS FOR UTILIZING BLAST-FURNACE GASES.*

By H. Savage.

The chief objection to the use of blast-furnace gases for the production of power which has been raised by engineers thus far is the quantity of dust carried over from the furnace; and it is this which seems to have alarmed the British metallurgists above all. This opinion seems to have drawn much of its force from the fact that motors of a certain size using illuminating gas are subject to clogging of the ports and passages; but this, as Mr. Charles Wood has pointed out, is probably due to the deposit of bituminous matter contained in the gas. Nothing of this kind occurs with blast-furnace gases, which, when the heavier dust is deposited, carries only the very fine dust with a little water in the form of vapor. Cooling then does not cause any bituminous or adherent deposit. However, the four plants now under construction in Great Britain all include some arrangements for purifying the gases.

In Germany there are now in use or under construction 18 plants for using blast-furnace gases, besides 7 in the various works of the Societe John Cockerill. These 25 plants include motors rated at a total of 12,740 H.-P. The Cockerill Company has adopted as a unit a gas engine of 500 H.-P. of the "Simplex" type. This is the class of engine which has so far been tested with excellent results. The accompanying illustration, Fig. 1, shows the first large engine run with blast-furnace gases. It is a Simplex engine of 200 H.-P., which has been in use in the Cockerill Works at Seraing for 18 months, running an electric plant, with all the regularity and economy which could be desired. It may be added that there is no provision for purifying the gases, except that for depositing the heavy dust.

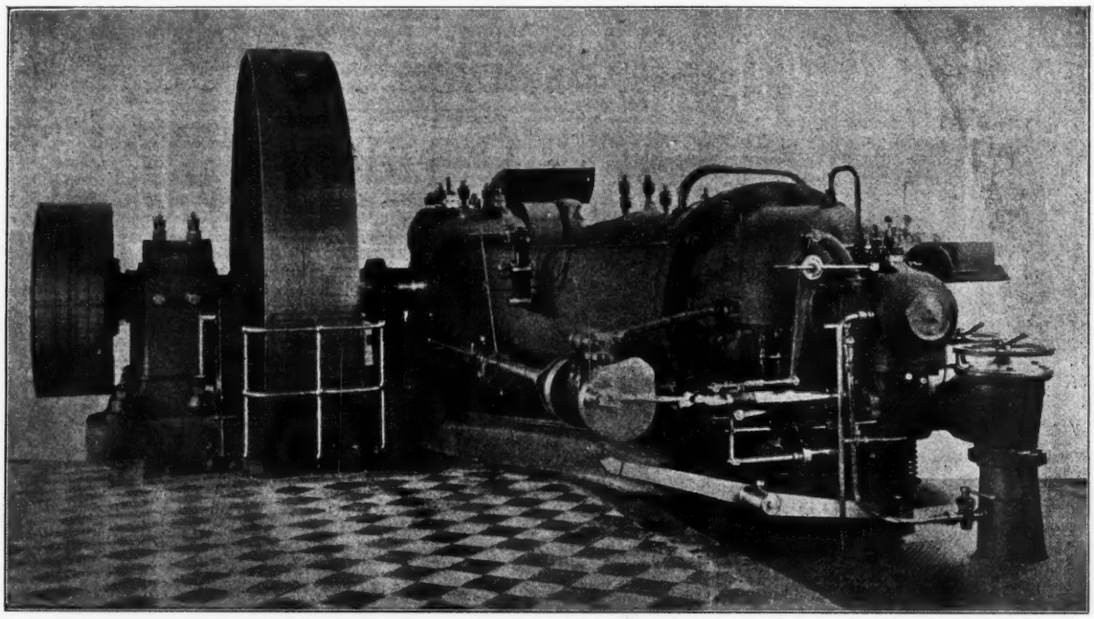
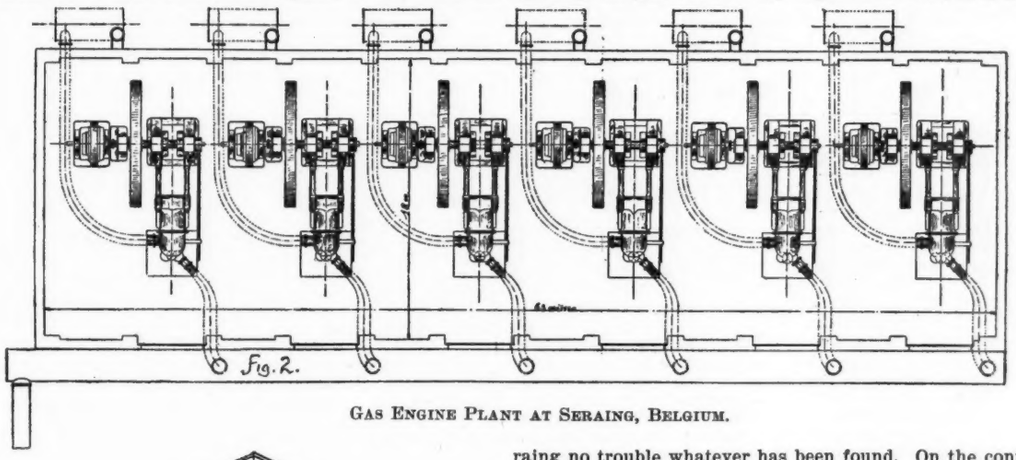


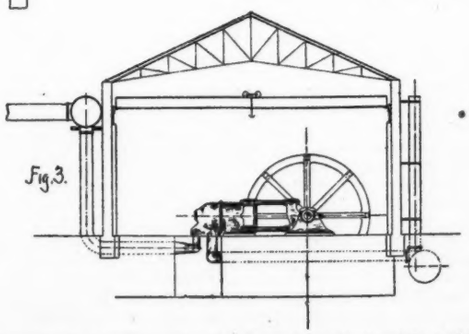
FIG. 1.—ENGINE RUN BY BLAST-FURNACE GAS AT THE COCKERILL WORKS, SERAING, BELGIUM.

One point which this engine has fully proved is that the difficulty in igniting the gas, which many engineers feared, does not exist. At Seraing no trouble whatever has been found. On the contrary, the use of comparatively poor gas offers several advantages to the constructor. With rich gas it is not prudent to compress the mixture of gas and air too much, on account of the high temperature of combustion and the resulting violence of the explosion. The shafts, valves and other working parts are exposed to violent shocks, and must be made of large dimensions. Poor gases, and especially blast-furnace gases, can receive a high initial compression, sufficient to secure this combustion, without giving rise to too high pressures. The size of the machine need not be increased, since, while it may be necessary to use four times as much gas to develop the required power, the quantity of air necessary for the combustion of the gas is very much less. Thus a cubic meter of illuminating gas requires 7 cubic meters of air for its complete combustion, while a cubic meter of blast-furnace gas requires only one cubic meter of air. The temperature of combustion is also very much lower, and the quantity of water required to cool the cylinders is therefore much less. M. Meyer estimates that we can obtain a thermic result of 30 per cent., which would be impossible with any other class of motor. As to the dimensions of the engine, the difference is not great, since experience has shown that with an engine proportioned to give 120 H.-P. with illuminating gas, we can obtain 100 H.-P. when using blast-furnace gas.

The purification of the gases is receiving a great deal of attention from engineers in Germany and Great Britain. Without denying the success obtained at Seraing with raw (unpurified) gases, the Germans



GAS ENGINE PLANT AT SERAING, BELGIUM.



*Abstract of paper in the "Revue Universelle des Mines," August, 1899.

seem inclined to think that the washing furnishes a certain degree of purity which it would not be prudent to neglect in most cases. Different systems have been proposed. That adopted at Oberhausen for an engine of 600 H.-P. is of the class of dry purifiers, and is composed principally of a series of coke scrubbers without any injection of water. Other installations include Koerting injectors, or other forms, in which water in a fine spray is used to throw down the dust.

The motors under construction in Germany are of various types. At Hoerde, where the first plant in Germany has been established, the motors are of the Oechelhauser type. This is a double-piston motor and was described in the "Engineering and Mining Journal," August 26th, 1899, page 249.

The Koerting engine is a motor in which the explosive action operates on both faces of the piston; this has worked well, but is more costly than the Deutz and other simple motors. With the Deutz engine, Mr. Munzel, director of the works, prefers not to exceed 250 H.-P. with a single cylinder. He claims that a group of four cylinders, each capable of developing 250 H.-P., a motor will cost much less and work more smoothly than if constructed with a single cylinder capable of giving 1,000 H.-P.

In designing the new plant at Seraing, the point which has received the most consideration has been the engines for operating the blowing cylinders. The gas engine has less elasticity than the steam engine and does not adapt itself so readily to variations in resistance or in the power required; moreover, it is generally considered necessary to run it at a high speed. A rate of 100 to 125 revolutions a minute has been considered the minimum, while 50 to 60 a minute has been the highest speed usual with the blowing cylinders. It has been found possible, however, to increase this to 80 a minute by using air valves of the Riedler or the Lang-Herbiger type, and to reduce the speed of the gas engines to this figure.

In the acompanying illustrations, Fig. 2 is a plan of the new gas engine installation at Seraing, which includes three engines of 500 H.-P. each operating dynamos, and three blowing engines. The blowing engines have gas cylinders 1.30 m. in diameter and 1.40 m. stroke; the air cylinders are 1.70 m. diameter. The admission and exit valves of the latter are of such dimensions that the rate of passage of the air will not exceed 10 m. a second. It is expected that these engines will each develop 700 indicated or 550 effective H.-P. when delivering air at a pressure of 0.35 or 0.40 m. of quicksilver. The engines are provided with regulators of the type devised by M. Bailly, which permit the motor to supply a reduced quantity of air, but at a higher pressure, whenever any unusual resistance to the blast is presented in the furnace. This regulator also permits the instantaneous starting of the engine, all that is required being to open the valve admitting the gas. With these engines a fly wheel of moderate size only—25 metric tons weight—is used. Fig. 3 is a cross-section of the engine house, showing a sketch of the elevation of one of the engines.

Fig. 4 is a plan and Fig. 5 a cross-section of the plant at Differdange in Germany. This plant, like that at Seraing, includes both blowing engines and engines operating dynamos. The motors, however, differ from those at the Cockerill Works, being of the Oechelhauser type; and there is a gas purifying plant adjoining the engine house.

The practical examples of actual construction show the importance which Belgian and German engineers attach to the utilization of blast-furnace gases and the confidence which they feel in the results.

THE CHLORINATION OF GOLD ORES AT MOUNT MORGAN, QUEENSLAND.

Written for the Engineering and Mining Journal by Edgar Hall.

The famous gold mine at Mount Morgan, Queensland, possesses probably the largest chlorination mill in the world. With the exception of a small quantity obtained by battery amalgamation in its earliest days, the whole of the large output of gold from the mine (about 2,000,000 oz. fine to date) has been extracted by chlorination. The method adopted in the first instance was barrel chlorination, the gas being generated from bleaching powder and acid within the barrel, and precipitation of the gold on charcoal.

Although the surface ores were thoroughly oxidized, it was found necessary to subject them to a preliminary calcination, which was performed in a multitude of small hand reverberatories. This calcination was conducted supposedly in order to dehydrate the limonite and kaolin, and so liberate the gold, although the heat used was much too low to dehydrate kaolin. The discovery during recent years that all of the ore will give reactions for tellurium, probably explains more accurately why calcination was necessary. The plant in the aggregate was very large, yet the separate units of the plant furnaces, barrels, filters, etc., were small, involving much waste of labor and chemicals, and consequently excessive cost.

The above method was followed with practically no improvements until a few years ago, when Mr. G. A. Richard became general manager of the mine. Since then changes have been rapid and improvements continuous, until to-day chlorination, as conducted at Mount Morgan, almost deserves the name of a new process. The gold is still chlorinated and extracted from the chloride solutions by means of charcoal, but the methods of carrying out the principles involved are completely altered. The adoption of direct leaching of the ore in open vats by a solution of chlorine in water has rendered possible the employment of units of plant limited in size only by convenience.

The roasting plant has also been remodeled, very large revolving cylinders, with continuous discharge, being used for the oxidized ore, and a furnace invented by Mr. Richard for the pyritic ore. The latter is called locally a "shaft furnace," but it is really a "shelf furnace," designed on the principle of the old Gerstenhofer furnace, but in its broad shelves resembling more the Stetefeldt shelf-drying kiln. An exterior view of a Richard shaft furnace is to be found in the "Engineering and Mining Journal" for May 27th, 1899, page 621.

This furnace is very economical in fuel, has a large output and furnishes a thoroughly oxidized product. The ore moves automatically over inclined planes in such a way that the quantity of ore per square foot lying on the hearth increases as the end of the roast is approached, while the speed of travel decreases. The movement is assisted toward the end of jets of air, which serve also to supply oxygen. This is an expensive furnace to build, but it secures the low initial heat and final high temperature required by theory in a very perfect manner, and it makes hardly any flue-dust. The gases issuing from the furnace are exceptionally rich in SO_2 and low in oxygen, thus pointing to a high chemical efficiency. The publication, contemplated by Mr. Richard, of full details of the working of this roaster should be looked for and carefully studied by metallurgists.

The pyritic ore of Mount Morgan consists of a gangue of quartz and silicified country rock, containing an average of 15 per cent. of pyritic mineral. Although the percentage of sulphur is therefore low, it is not easy to obtain the perfect roast required for a high extraction of the gold with a low consumption of chlorine. Various mechanical roasters were tried without success before the Richard furnace was evolved.

The new West Works, for the treatment of mundic ores solely, has just been completed, and embodies the latest Mount Morgan practice. The ore is dry crushed in Krupp ball mills, then roasted in Richard shaft furnaces, cooled by an ingenious device of the management, and conveyed automatically to large bins, from which it is trucked to the vats. The vats are very large, oblong tanks, made of cement concrete, about 4 ft. deep, containing on the bottom a filter bed of gravel and sand. These vats are perfectly open on the top, and the leaching of the ore is conducted in exactly the same manner as ordinary cyanide or hyposulphite lixiviation. The chloride solution is passed through charcoal filters for precipitation of the gold. These filters are now made very large and lined with cement. The chlorine is generated in stills, in the ordinary way, from manganese, salt and sulphuric acid, and absorbed in water contained in large cement-lined, covered tanks. The solutions circulate through earthenware pipes, the pumps and valves being nearly all of local design, and representing the "survival of the fittest" in the long experience of the mine in dealing with chlorination. One noticeable feature is the use everywhere of Portland cement where chlorine-bearing liquids are dealt with. It has been found that even the chlorine stills may be made of neat cement.

This open vat lixiviation of gold ores by chlorine water has reduced costs enormously and proved an advantage in every way. It simplifies the whole process, renders it applicable on any scale which may be desired, and for gold ores which require roasting it is much cheaper than cyaniding. It is also applicable to ores carrying a small amount of copper, where cyanide would fail altogether.

Mr. G. A. Richard, to whom these improvements are chiefly due, is a young Victorian mining engineer, who has been in the service of the mine 14 years. His appointment as general manager a few years ago enabled him to put into practice the results of the observations and experiments he had made while he held subordinate positions.

The new practice has rendered profitable the enormous quantities of low-grade oxidized and sulphide ores existing in the mine. Its success is shown in the increased dividends, and in the rise in the price of shares from £2 to over £5, at which price they are firmly held as an investment. The mine developments show that the size of the ore body is well maintained in the lower levels, and that the rich ore lives down, ore existing at the 600-ft. level as rich as any found above. A main shaft is being sunk, and is equipped with hoisting gear to go down 1,500 ft.; that will be over 2,000 ft. below the original top of the ore deposits. It is believed that the Mount Morgan Mine will continue to be a large producer for many years to come.

In the management of the mine all the important positions of trust are now filled by young engineers, graduates of a mining school, a marked contrast to the old state of things. It is understood that a paper dealing with the mine and the plant in all their bearings is being prepared by the members of the staff.

Rumors of changes at Mount Morgan have been widespread, but doubtless most metallurgists, like myself until a recent visit to the mine, were uncertain as to what they really were. I trust that these notes, without going any further into details, will make the matter clear.

COMPRESSED AIR IN GLASS MAKING.—At St. Helens, England, says the London "Engineer," a glass factory has been started in which the old system of blowing is replaced by an automatic arrangement of molds and blow-pipes worked by compressed air. It is said to be capable of turning out 5,000 tumblers a day, lamp chimneys at the rate of 3,000 and 4,000 per day, and larger articles in proportion. Under the old conditions a gang would turn out only about 400 tumblers a day against 5,000 by the machine process.

THE COOLGARDIE WATER SUPPLY.—The Agent General for Western Australia, in London, has been informed that a report is in circulation that the Government of the Colony has been unable to construct the Mundaring Reservoir owing to engineering difficulties, and in consequence has decided to abandon the Coolgardie Water Scheme. He desires to contradict this statement and to add that his latest advices informed him that the foundations of the reservoir are quite satisfactory, and the work of cementing would proceed quickly; that the first pipes would soon be delivered, and the undertaking pushed on as rapidly as possible.

ELECTRIC BLASTING IN SLATE QUARRIES.—The system of simultaneous blasting by electricity has lately been adopted at Llarngwern quarry, Corris, with results which far exceeded the sanguine expectations of the directors and of the men, says "The Quarry and Builders' Merchant" of London. The first blasts were under the superintendence of Kellow & Co., Portmadoc, who supply the electric blasting appliances, and, when necessary, give instructions in their use. On August 8th, 15 holes, varying from 4 to 8 ft. deep, were fired simultaneously, bringing down about 2,000 tons of waste rock in one operation, and on August 17th 3 blast of 8 holes, 9 holes and 19 holes respectively were fired with equally good results.

THE SAN FRANCISCO MEETING OF THE AMERICAN INSTITUTE OF MINING ENGINEERS.

Specially Reported for the Engineering and Mining Journal.

As briefly noted last week, the members of the Institute, on their way from Portland by special train, were met at Shasta Springs by the reception committee from San Francisco, and were from that time on treated as guests of the city and State. The reception was under the general charge of the California State Miners' Association, and much praise is due to the managers for the excellent arrangements made for the entertainment of the visitors. The officers of the association are: Hon. Jacob H. Neff, president; W. C. Ralston, vice-president, and E. H. Benjamin, secretary. The general executive and excursion committee was composed of the following members: Hon. J. H. Neff, W. C. Ralston, Charles G. Yale, J. F. Halloran, Judge E. A. Belcher, Harold T. Power, A. D. Foote, B. S. Rector, W. F. Detert, E. C. Voorhies, Curtis H. Lindley, S. B. Christy, W. S. Keyes, Captain Thomas Mein, A. A. Watkins, W. B. Bourne, Fred Zeitler, W. P. Hammon, F. F. Thomas, John Ross, Jr., J. F. Parks, Thomas Hender, W. H. McClintock, P. A. Buell, Charles C. Derby, H. E. Picket, Fred W. Bradley, D. R. Oliver, Fred Williams, Mark B. Kerr, Frank A. Leach, J. J. Crawford, M. E. Dittmar, Lew E. Aubury.

The reception committee was made up as follows: Hon. James D. Phelan, Hon. Tirey L. Ford, Daniel M. Burns, R. S. Moore, S. J. Hendy, Tyler Henshaw, S. Mooney, Andrew Carrigan, Joseph Sloss, Edward Coleman, James S. Brownell, John Bermingham, P. George Gow, A. J. Ralston, Hon. Henry T. Gage, Irving M. Scott, W. W. Montague, James Spiers, Jr., B. T. Lacy, H. T. Lally, Colonel Geo. H. Wallis, John M. Wright, John D. Davis, W. A. Doble, George Johnson, Julian Sonntag, P. N. Lilienthal, Louis Glass.

After visiting the Mountain Copper Company's works at Keswick, the members who were on the train reached San Francisco early on the morning of Monday, September 25th. The headquarters were established at the Palace Hotel.

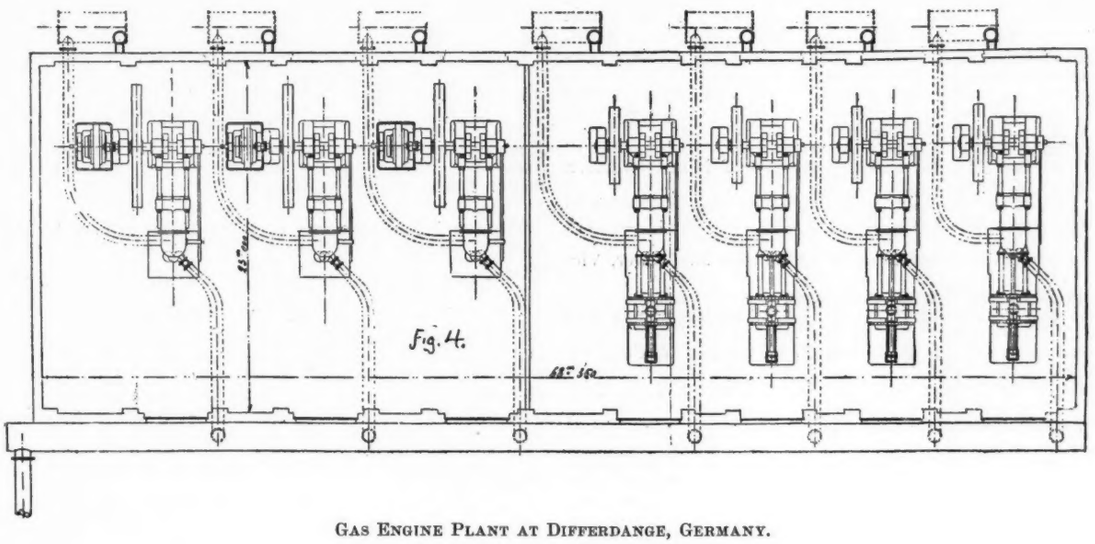
The first session was held at 2 o'clock and was opened by an address of welcome from Vice-President William C. Ralston of the California Miners' Association. He called the visiting engineers' attention to the fact that California was by no means an exhausted or decreasing source of gold, and there were miles of untouched river beds underlaid with auriferous ore and great virgin ledges of quartz to be developed. This State, he said, was now annually producing between $16,000,000 and $17,000,000 of gold and a total of some $26,000,000 of all metals combined, and that the principal thing needed was the honest creation of the belief among outside capitalists that there were great mineral resources here awaiting investors who would operate.

President James Douglas of the Institute prefaced his remarks with an expression of regret that Lieutenant-Governor Neff, president of the California Miners' Association, had not been able to remain for the session. He paid a high tribute to the name of Ralston, saying that the father of the vice-president of the California Miners' Association had been one of the most prominent and worthy figures in the history of the argonauts of the Golden State. He then proceeded to deliver the annual address, which was published in our account of the meeting last week.

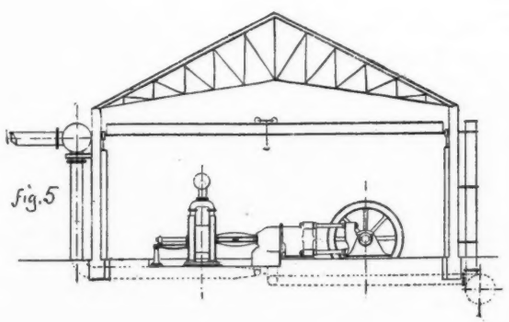
Dr. R. W. Raymond of New York, secretary of the Institute, was the next speaker. He explained that the deputation that had come from the East with him was only a small party of individuals, who had travelled several thousands of miles to meet members of the Institute residing in the Far West and to hold the last session of this century in one of the greatest and most diversified mining districts in the world. He announced that application blanks for membership would be provided for the use of the California Association, that it might submit names during the session here and have them voted upon at some later time.

Professor William P. Blake of the Arizona School of Mines then read a paper on the "Origin of the Yosemite Valley and the Erosive Effect of Glaciers." He illustrated his remarks by drawing upon a blackboard, giving a very clear idea of the subject. He said in part:

"The gorge of the Yosemite, so grand and impressive, is only a minor feature of the glacial workings above it, through hundreds of square miles of the Sierra. The ice has left its record in the Yosemite, even to the floor. The ice must have filled the gorge, and much above it, to a thickness of 5,000 ft., and with a pressure upon the floor of the valley of 120,000 lbs. to the square foot. Imagine the tremendous force of such a weight, on the under surface of which was a broken mass of rock, like diamonds in a drill, grinding, planing and cutting. For untold ages this mighty force was at work, polishing the face of the country through which it passed. The character of the rock of the Yosemite is granite, close grained and vertical in structure, with points of easy fracture. As the great mass of ice bore down upon this vertical rock it was broken and knocked over by the moving ice, flaking off at the places of easy cleavage. Thus was formed the precipice and thus is explained the dome-shaped summits of the mountains there. The ice has left its track unmistakably.



Gas Engine Plant at Differdange, Germany.



"It has been argued against the glacial theory of the formation of Yosemite that no glacial moraine is found in the valley. We have the testimony of many scholars that glacial moraines are not found where a glacier debouches into a lake or the sea. We know that the ocean once beat against the foot hills of the Sierra, and it is by no means impossible that the sea once reached as far as the outlet of the Yosemite. The polishing effect of great masses of ice, seen beyond question of doubt in many high places in the Sierra, is removed in many other places by the storms and frosts of ages. Yet no one can visit Yosemite Valley without perceiving evidences of glacial action. The theory advanced by Professor Whitney to the effect that there was a tremendous convulsion of nature in which the floor of the valley sunk below the level of surrounding hills, thus accounting for the precipitous cliffs, is entitled to fair consideration, but it does not account for the glacial action seen on every hand.

"In erossing the Sierra from the Yosemite to Lake Mono the evidences of glacial action are shown on every hand. There, on the Tuolumne meadows, are the rounded tops of hills over which swept in bygone ages vast masses of ice, which must have covered the Yosemite Valley hundreds of feet. As this mass pressed forward, grinding, crushing, smoothing and shaping, evidences were left behind by which the geologist may read the record as plainly as in an open book. The rocks are there in places exactly as left by the disappearing ice. In one place the ground has been smoothed—sandpapered, so to speak—by the gigantic force, so as to be dangerous to animals and has earned the name of Bloody Canyon."

Two papers were presented in abstract by their authors, as follows:

"Notes on Mining Cable Tests and Physical Tests of California Timbers," by Professor Frank Soule, University of California.

"The Construction of the La Grange Dam," by E. H. Barton, Sonora, Cal.

The following papers were presented in print:

"Stoping With Machine Drills," by Bert Thane, Sumdum-Chief Mine, Alaska.

"Deep Mining at the Utica," by J. H. Collier, Tesla, Cal.

"Note on Plate Amalgamation," by Allan J. Clark, Lead, South Dakota.

"The Mines and Mill of the Atacama Mineral Company, Limited, Tiltal, Chile," by Sydney H. Loram, Chingford, Essex, England.

"Investigation of Magnetic Ores from Eastern Ontario," by Frederick J. Pope, New York City.

"The Relative Desulphurizing Effect of Lime and Magnesia in the Iron Blast Furnace," by O. R. Foster, Brooklyn, N. Y.

On Tuesday a session was held at 9.30 A. M., when Prof. S. B. Christy of the University of California gave an address on the "Electromotive Force of Metals in Cyanide Solutions." He presented in outline the results of an investigation he has been conducting during the last three years in the mining laboratories at Berkeley. He gave a general lecture on the subject. The questions raised in his elaborate paper are of importance in all applications of the cyanide process in the extraction of ores, as they concern the order in which the different metals are dissolved and precipitated. The relations of all the important metals and metallic ores were tabulated in the form of curves and thrown upon the screen with a stereopticon, so that the results of experiments were clearly evident to the eye. These curves showed the changes produced in the relative position of the metals in the series as the cyanide solutions become more and more diluted. They also showed exactly how much there is in the so-called "selective action" of dilute cyanide solutions for gold and silver. An interesting feature of Prof. Christy's lecture was an outline of the important advances in the science of electrochemistry made in the last 12 years, and an explanation of their relations to the cyanide process.

A paper was then presented in abstract by Prof. A. C. Lawson of the University of California, on the "Economic Geology of Russia." It was illustrated by a number of photographs and views.

The following papers were read by title:

"Ore Deposit of the East Murchison United Gold Mine," Western Australia, by D. P. Mitchell, Palo Alto, Cal.

"Occurrence of Tin Ore at Sain Alto, Zacatecas, with Reference to Similar Deposits in San Luis Potosi and Durango, Mexico," by Edward Halse, Columbia, S. A.

"Copper Deposits of Vancouver Island," by William M. Brewer, Victoria, B. C.

"Rock Salt in Louisiana," by A. F. Lucas, Lafayette, La.

"The Lee Long-Wall Mining Machine," by H. Foster Baines, Des Moines, Iowa.

"Natural Coke of the Santa Clara Coal Field, Sonora, Mexico," by E. T. Dumble, Houston, Texas.

"Transcontinental Railway Lines," by James Douglas, New York City.

"The New Alaska Treadwell Gold Mills," by Robert Mein, Oakland, Cal.

Dr. Raymond, secretary of the Institute, then announced the receipt of invitations and tickets to the Mechanics' Fair, and several other local invitations and compliments offered to the visiting engineers and the ladies with them. He called attention also to a beautiful illustrated volume of 450 pages, fresh from the press, entitled "California Mines and Minerals." It has been prepared as a free souvenir edition by the California Miners' Association and calls the attention of each of the members of the Institute to the bountiful mineral wealth and the thousands of acres of undeveloped and unprospected country in California. The work is made up of a number of articles by California experts, and deals with all kinds of mining and the mineral districts in this State. It is illustrated with the finest photogravure pictures of the principal representative mines, with accurate mining maps of various counties. Thirty-five distinct subjects are treated. The great burden of the work of preparing the publication fell upon Edward H. Benjamin, secretary of the California Miners' Association.

The afternoon was spent by members in visiting various points of interest in San Francisco and vicinity. In the evening the ladies attending the meeting were given a reception at the rooms of the California Club.

The closing session was held on Wednesday morning, when the following papers were presented in abstract by the authors:

"Electricity as Applied in California Mining Practice," by Prof. C. L. Cory, University of California.

"The Geology of Arizona," by Prof. Theo. B. Comstock, Los Angeles, Cal.

"Tangential Water Wheels," by W. A. Doble, San Francisco, Cal.

The following papers were read by title:

"Notes on the Independence Mine at Cripple Creek, Colo.," by T. A. Rickard, Denver, Colo.

"Gold Mining at Minas Prietas," by E. R. Abadie, Torres, Sonora, Mexico.

"Treatment of Oxidized Ores of the Lake View Consols Mine," by J. W. Sutherland, Boulder, Western Australia.

"The Effect of Heat Treatment Upon the Physical Properties and the Microsstructure of Medium-Carbon Steel," by Robert G. Morae, Jamaica Plain, Mass.

"Peculiar Forms of Native Gold," by Geo. F. Kunz, New York City.

"The Cement Rocks of Illinois," by J. A. Ede, Spring Valley, Ill.

"The Temperature at Which Certain Ferrous and Calcic Silicates are Formed and the Effects upon these Temperatures of the Presence of Certain Metallic Oxides," by H. O. Hoffman, Boston, Mass.

"Wolframite-Deposits in South Dakota," by A. Forsythe, Rapid City, South Dakota.

"Nickel-Steel, a Synopsis of Experiment and Opinion," by David H. Browne, Cleveland, Ohio.

At the close of the meeting Dr. Raymond, as secretary, announced that it is not customary with the Institute to pass resolutions of thanks at its sessions. Separate letters of appreciation will later be sent to all the organizations and public individuals that helped to make this visit to California both instructive and delightful. He made this explanation, he said, that the public might not infer that the transcontinental party of visitors had been unmindful of the cordial hospitality of Californians. President Douglas indorsed the words of the secretary and added that the California committee had made but one mistake, and that was in furnishing such a diversified and entertaining outside programme that the business sessions were not long enough to permit fuller discussions of the subjects presented.

At 12.30 o'clock the transcontinental party and a large number of Westerners started on the trip to Berkeley and Port Costa, to visit the University of California and the Selby Smelting and Lead Company's plant. An electric car ride was taken through Oakland to the University campus, where the visitors spent an hour and a half. After a 40-minute ride by train they arrived at the Selby Works, where another hour and a half was advantageously occupied. They returned to the city shortly after 6 o'clock.

In the evening the members were entertained at a banquet tendered them by the business men of San Francisco, the occasion being a most enjoyable one.

Some 200 guests were present, including many prominent persons. Mr. A. A. Watkins acted as toastmaster. Speeches were made by Mr. James Douglas, Dr. R. W. Raymond, Irving M. Scott, Mayor Phelan, Prof. Christy, Senator Davis, Prof. Jordan and others. A special song, dedicated to the visiting engineers, was sung.

On Thursday the members visited the Leland Stanford Junior University and the Lick Observatory. On Friday those who took the excursion from the East started on their return, the points visited being the New Alameda Quicksilver Mines, on September 29th; Grass Valley and Nevada City, September 30th and October 1st; the Dutch Flat Hydraulic Mines, October 2d; Oroville Mines, October 3d; Sutler Creek and Jackson, October 4th; Calaveras County Mines, October 5th, 6th and 7th. Next week will be occupied in visits to the Yosemite Valley and Southern California, the party leaving Los Angeles for the East October 12th. The only stop on the journey from that point will be made at the Copper Queen Mine in Arizona, where the mine and reduction works will be inspected.

We give below abstracts of some of the papers presented at this meeting; several others were given in our report published last week:

The Occurrence of Tin Ore at Sain Alto, Zacatecas, Mexico.

By Edward Halse.

The tin deposits examined by me in May, 1895, are found in the Serrania de Chacuaco, Municipality of Sain Alto, District of Sombrerete. The workings are situated in a range of mountains having a general northwest to southeast trend between Sombrerete and Fresnillo; the most northerly claim (La Desparamada) being about 6 leagues southeast of the former town. El Refugio lies about 4 leagues to the southwest, and El Calabrote 8 leagues to the west, of Fresnillo. The claims are from about 8,425 to 8,775 ft. above sea level and from 1,500 to 1,800 ft. above Sain Alto.

The mountain range consists of a rugged, weathered, gray granite rock, remarkable for large grains of quartz, and is flanked by masses of rhyolite and rhyolite-tuff of upper Tertiary age. The whole formation is broken up by narrow and steep winding arroyos and deep barrancas, mainly the result of denudation, and it appears to be a southeasterly extension of the tin-bearing belt of rocks north of Durango City. Here and there patches of schist occur; but eruptive rocks largely predominate. The granite is divided up by a series of nearly vertical jointplanes parallel to the main range (N. W. to S. E.), and is crossed at right angles by a series of still more clearly defined joints, while the rock is bedded or jointed horizontally as well—the result being that at the surface it is often weathered into curious prismatic columns, which give a peculiar topography to the district.

The paper then goes on to describe in detail the workings at El Refugio, La Desparramak and El Nararjo, the chief mines of the district. At Las Cuevas there is a small colony of tin searchers ("gambucinos") and smelters. Alluvial tin ore is found on the slopes and along the bottom of the various arroyos, and is extracted by simply removing the overburden and washing the tin-bearing layer in bateas. The tin is usually collected after heavy rains, and consists of reniform and botryoidal pieces, varying in size from that of a pea to beautiful specimens of wood tin (termed "hueso" by the gambucinos) several ounces in weight. As the arroyos are numerous, run in various directions, and are steep, narrow and winding, no large quantity occurs in any one spot. It is said that about 500 cargas o(r about 62½ tons) per annum are brought in from the surrounding districts and are smelted in Las Cuevas. By far the greater proportion is received during and directly after the wet season, or from July to December.

The ore is smelted with charcoal in rough stone furnaces, from 4 to 6 ft. in height, in which as described, the furnace is 4 ft. in height, 6 ft. length, and from 1½ to 2 ft. in width. The center and back of the furnace are formed of uncut stones and clay, the shaft itself being well lined with the latter. The front and sides are built of stones and mortar. The shaft at the top is strengthened on either side by a large stone reaching from front to back. The shaft measures 12 by 9 in. at the mouth, diminishing to about 6 in. square just above the tuyeres, while at the tuyeres it is 8 in. square. The hearth opening measures 12 by 6 in. The tuyere opening is 4 in. in diameter, and is placed about 10 in. above the base of the furnace. The blast is produced by a double leather bellows worked by hand. Two tuyeres are used, 44 in. long. The ends projecting into the furnace are of iron, 8 in. in length. Above this they are of wood, covered with ox hide for a length of 30 in. The tuyeres slope downwards and can be moved so as to impinge on the tuyeres openings at the back of the furnace.

In 1895 alluvial tin ore was purchasable at 9c. (silver) per pound on the hills, or at 12½c. placed in Las Cuevas. At Sain Alto, white tin could be bought at $20 (silver) per quintal, or $400 per short ton.

The Lee Longwall Mining Machine.

By H. Foster Bain.

This paper describes at length a machine especially adapted for longwall mining, devised by David A. and Thomas E. Lee of Centerville, Iowa. It was gradually developed out of observation of the daily needs of a local coal mine.

The machine, which is covered by United States patents (No. 563,776, issued July 14, 1896, to James E., David A. and Thomas E. Lee, Centreville, Iowa; and No. 601,971, issued April 5, 1898, to the two latter of the same parties), consists essentially of a self-propelling motor, running on a horizontal track parallel to the face and driving a projecting cutter bar, set spirally with teeth and revolving rapidly in a horizontal plane under the coal. In outside dimensions it is 24 in. wide, 52 in. long and 27 in. high. The type in use undercuts 30 in. and weighs 3,200 lbs. The motive power is electricity, though compressed air or other power is equally applicable. The motors used are of the ordinary type used in street car work, and are rated at 15 H.-P. In ordinary work about 8 H.-P., or 120 kilowatts, are used; and in hard cutting about one-fourth more is occasionally called for. The voltage employed is 220. In the first mine equipped it was found that when working 1,800 ft. from the engine room there was a loss in transmission of approximately 10 per cent. This was, however, largely due to defective insulation. In the mines more recently equipped the working losses are brought within 5 per cent. No. 0 covered wire is used for underground connections, but uncovered wires are used above ground, to connect the central power station with the mines.

The track upon which the machine runs consists of two rails, one notched and placed next to the face, and the other plain, parallel to the first, and about 18 in. away. These rails are made of common 1½-in. angle iron. In the case of the plain rail, two bars are riveted directly together, so as to give an inverted T cross-section, with a 3-in. base. The other rail is made by using rivets ½-in. in diameter upon which shoulders are cut so as to hold the two angle bars 1⅛ inches apart. These rivets are set at intervals of 1½ in., and the effect is that of a flat-bottomed rack-bar. These rails are made in suitable lengths for easy handling, and two of each are required. The rack bar is laid flat on the ground, with sprags braced against the coal, and a crow-bar brace against the roof at the rear. The outer rail is unbraced, and there are no cross pieces connecting the rails. When the machine is running, the extra set of rails is set ahead of it; and when the machine comes upon them the sprags of the released rail are knocked loose, and the rail is shoved forward alongside the machine and relaid ahead. The operation of track laying is carried on by the two men who operate the machine, without stopping the latter or in any way interfering with its work. The machine propels itself by means of a suitable toothed wheel, meshing with the rack bar.

The essential and novel feature of the machine is the form of cutter-bar. This bar is 2¼ in. in diameter at the machine and 1½ at its outer end. The shaft and bar are made in one piece, and so arranged as to be very readily slipped out and replaced when the teeth are dull. Around this bar is fastened a spiral band of steel with 42 projecting teeth, much resembling in outline the teeth of a cross-cut saw. The teeth are set so that they do not quite cover each other, and it is estimated that the work is one-fourth cutting and three-fourths breaking. The cutter-bars are used for under-cutting about 100 lin. ft., and are then reground. The latter operation takes from 5 to 10 minutes. Each set of teeth is good for about two weeks' work, after which the three rivets which fasten the spiral to the bar proper are knocked out and a new spiral is slipped on. It is estimated that the cost of the teeth is about ¾c. per ton of coal won.

An important feature of the cutter-bar is the spiral arrangement of the teeth, as the effect is that of a screw conveyor in clearing out the under-cut. Another important feature is the ability to turn the bar on a vertical pivot by means of a hand wheel. By this means the bar can be thrown to the rear, as shown in the same figure, for the purpose of changing from a dull to a sharp cutter, without disturbing the position of the machine at the face. This change requires about 5 minutes. By means of this device the machine is made to cut its way into the coal, so that no pick work is necessary in starting it. This is an indispensable feature of a successful machine.

There is an arrangement for fitting truck wheels to the machine for conveying it from point to point in the mine. All delicate machinery is carefully protected from dirt.

At present 12 machines are in operation and 4 are building. They are all worked by the Electric Coal Company of which the patentees are the main owners.

The coal worked is the Mystic seam, a clean, brittle coal, worked ordinarily by pick mining and requiring no shooting. It is of excellent quality, though thin, and furnishes about 2½ ft. of good coal.

In ordinary every-day work the output is from 40 to 60 tons of coal, or 600 to 650 sq. ft. of under-cut, to each machine in a working shift of 8 hours, with 2 men to each machine, and from 10 to 12 followers loading coal, building pack walls, etc. The total cost for labor in undercutting is, at present rates, 11c. per ton. Records of repairs and breakage for 12 months showed a cost of ⅜ to ½c. per ton. In general, as compared with hand work in the same field, and even in the same mines, there is a saving of about 20 per cent. in the cost of machine-mined coal.

Natural Coke of the Santa Clara Coal-Field, Sonora, Mexico.

By E. T. Dumble, Houston, Texas.

During explorations made for the Southern Pacific Company in the early part of this year, deposits of natural coke, of such extent and excellent quality as to be worthy of record, were found in the Santa Clara Coal-field. This coal-field lies in the neighborhood of La Barranca, 95 miles northeast of Ortiz, on the Sonora Railway. The coal-beds are exposed in the drainage-basin of Calera Creek, which empties into the Yaquit River opposite Toniche; and the old mining town of Tarahumari is nearly at the center of the field. The entire area is underlain by rocks of Triassic age, much disturbed in places, and cut through and covered by erruptive rocks of various kinds and ages. The coal-beds occur in a series of interbedded sands and clays, in the upper half of the sedimentary Triassic rocks. Below them is a great series of quartzitic sandstones and very sandy slates, and above them are other sandstones, and the eruptive member of the group, the Lista Blanca formation.

These sands and clays, with their included coal-beds, dip about 30° S. E. This gives their outcropping edges a N. E.-S. W. direction. The general dip and strike are, however, often changed by the bodies of eruptive rock which have intruded themselves between certain beds, so that the dip may be anything from south to east, with even northerly dips in a few localities. The angle varies from 15°, or less, to 60° or a little more; but these extremes are rare, and obtain for limited areas only. The beds have been somewhat folded, the general axes of the folds being nearly north and south. In a few instances these folds run out into faults; but, as a rule, the faults have only a very moderate throw. The rocks of the coal-measures are sands and clays. These have been altered, in most instances, into hard sandstones and quartzites on the one side, and into slate on the other. Trachyte, diorite and phonolite are the principal eruptive rocks present. The slates and sands vary from pure clay-slates, through sandy clays, clayey sands and sandy slates, to sandstones; and these variations may be observed in the same bed, if it be traced a sufficient distance, either horizontally or vertically. Only a few beds are persistent through considerable distances as distinct sands or clays. The strata are for the most part quite evenly bedded; cross-bedding having been observed to a very small extent only.

The eruptive rocks have been forced in between the other materials; and, although in places they do cut across the strata, they occur in the coal-area principally along bedding-planes. This gives them the appearance of being interbedded with the sandstones and slates, and so closely do they simulate one or the other of these in outside appearance that they may often be overlooked until, at some point, they suddenly increase in thickness from 1 to 20, 30 or more feet, forming laccolites, and throwing the overlying rocks out of their regular trend. It is to such laccolites that the principal flexures of the beds are due. The largest laccolite observed is the great body of diorite west of Tarahumari. Its length from north to south is half a mile, and its width is not much less. It has come in between the Tarahumari sandstone and the underlying slate, and, in places, has even intruded into the slates, so that it now appears to be interbedded with them as well as to overlie them. This is the only diorite laccolite observed; the others are nearly all trachytic. These interbedded lavas have had much to do with the alteration into coke of that part of the coal with which they have come in contact.

In our search for coal-outcrops on Calera Creek we came across a fragment of coke, and, tracing it up, finally found a small bed of impure coke at the mouth of El Tren, one of the principal tributaries of that stream. A few days later, one of the prospect-slopes, driven on a supposed coal-outcrop, opened out into a body of 3 ft. of good coke, underlain by 2 ft. of anthracite. Later still, as we were prospecting a creek somewhat over half a mile west of the last, we found a place where the gophers had brought out some coal-dust, and put men to work on it. Within 10 ft. it opened into a good body of coke, which at 30 ft. depth was 8 ft. thick and at 130 ft. depth was over 10 ft. thick. Besides these two principal openings, which we subsequently proved to be in the same bed, we have since located several other deposits, with thicknesses of from 2 to 4 ft.

In almost every instance there is a close relation between the intrusive rock and the coke. In the two principal openings, the igneous rock either forms the roof or is separated from the coke by a very thin band of slate; and in both slopes there are places where the coke holds included blocks or stringers of the intrusive rock. In another opening the igneous rock forms the floor; and here, too, it is occasionally mingled with the coke; while, in still another, the very plastic nature of the igneous rock at the time of its intrusion is shown by the fact that it fills even small crevices in the coke along the line of contact.

It is possible, however, that the coke is not entirely due to the effect of the igneous rock. One bed of coke has, so far as we have found, no igneous rock near it; and again, at one locality, there are small pockets of coke in a 4-ft. seam of anthracite, and, so far, we have not found any intrusive rock in the immediate vicinity. These pockets are at about the center of the seam, and are small; but the coke is of good quality. Corresponding in a way to the occurrence of the coke in the anthracite, we find, for the first 50 or 60 ft., in the Gopher slope, a little anthracite in pockets at the base of the coke.

The occurrence of coal and coke in the same bed, but in separate benches, is also noticeable. This is found in three separate localities, and in different beds. In two cases the coke forms the upper bench, and in the other the coal is on top. In the first opening mentioned above, the two benches are separated by a clay parting, 3 in. thick. In the other two I did not find any parting.

Where the coal is crushed, a little graphite is found along the lines of fracture. I have not found it elsewhere in the beds. Some of the anthracite of the region also has a little graphite, in similar relation; and there are several localities where the entire bed is altered to graphite. The occurrence in the coke-seam is interesting, however, as it shows that in the cumulative transformation from vegetable fiber to graphite, the passage may be either through anthracite or through natural coke.

The coke is dark gray in color, of even texture, with small pores (denser than most oven-coke), and very firm. It breaks with very even fracture, but has in places the columnar structure of oven-coke well developed. It is an excellent fuel, burning without any sparking or deflagration. It is little or no harder to ignite than the anthracite, and burns well in an open fire, in the blacksmith-forge and in the assay-furnace. The ash is white.

The value of these coke-beds is largely due to the fact that the intrusives are so regularly interbedded, running for long distances in the same bed of coal-slates. This gives promise of a far greater sup-

ply of coke than could be hoped for under other conditions, and gives to the deposit, in this region, where there is no coking coal of any kind, a decided commercial importance.

The Copper-Deposits of Vancouver Island.

By William M. Brewer, Victoria, B. C.

Until within the past two years but little attention has been given to the outcrops on the west coast of Vancouver Island, and their copper contents. During the past few months the writer has been engaged in examining and developing some of these prospects. In many respects he has found characteristics associated with these prospects which, in his experience, are unique. In the first place, nearly all the outcroppings which overlie chalcopyrite-ore along the west coast of the island are composed of a high-grade magnetite. The magnetic qualities of some of these outcrops are so pronounced that the magnetite possesses polarity. Analyses made for other parties show a yield of 62 or 63 per cent. of metallic iron, with only traces of phosphorus and silica. At a very shallow depth, masses of chalcopyrite, yielding in some instances as high as 32.6 per cent. of copper, occur associated with the magnetite; and in one instance, which recently came under the writer's observation, a solid body of high-grade chalcopyrite, fully 4 ft. in thickness, occurs within 6 ft. of the surface.

Usually this solid sulphide-ore carries low values in gold. Probably an average of $2 per ton would be fairly representative. But in some instances development has determined the occurrence of narrow stringers of pyritous quartz, associated with the sulphide-ores, which yield by assay more than $20 per ton in gold. In the districts examined the country-rock is usually crystalline limestone, with dikes of igneous rock as intrusions. Sometimes the outcrops of magnetic iron-ore are found in the limestone itself; but they usually occur at the contact between the limestone and igneous rock, or in fissures cutting through the igneous dikes. Most of these dikes are apparently composed of quartz-diorite. The trend of the country-rock is conformable with that of the island, northwesterly; but the line of strike of most of the ore-bodies is usually northerly, or northeasterly.

Lode-mining on Vancouver Island is merely in its infancy. In fact, 175 ft. is the greatest depth which has yet been attained on any of the ore-bodies. In one instance, where this depth had been attained, the writer is informed that both the continuity and the grade of the ore were maintained. At another location, recently visited by the writer, he found that high-grade chalcopyrite occurred at a depth of about 120 ft.; but this had not been either cross-cut or drifted on.

Although the outcrops of magnetite are usually quite persistent in length, especially when they occur in fissures in the igneous dikes, yet the writer has failed to find any instance where the lodes can be traced for any considerable distance without a break. On Bear River, at the head of Bodwell Sound, which connects with Clayoquot Sound, some of the outcrops can be traced easily for a distance of from 500 to 700 ft. Another instance where the outcrop can be traced for about the same distance, occurs on Anderson Lake, which empties into Uchucklesit Harbor, which connects with Barclay Sound. Still another instance occurs near Goldstream, about 10 miles northwesterly from Victoria. This last outcrop, however, is composed of gossan instead of solid magnetite.

Usually, when the outcrops are found on the contact between the crystalline limestone and igneous rocks, they cannot be traced as readily along the line of strike as when they occur in fissures in the igneous dikes. The contact-outcrops occur in masses or pockets, sometimes covering a considerable area of ground, and often disposed in a tolerably regular line, but with no indications on the surface that there is any connection between the different pockets. It is not safe to form an unqualified opinion as to the non-maintenance of continuity along the line of strike, because the ground is often covered with such a thickness of moss or, at other times, debris from slides, that it would be necessary to do considerable work on the surface to prove the existence of non-existence of the outcrop. At no location where masses of outcrops occur along the contact has sufficient underground work been performed to determine the continuity of the ore-bodies between the masses of outcrop.

The writer has observed several places where the outcrop of magnetic iron-ore occurs in the crystalline limestone. Such occurrences are apparently limited in extent, and do not appear to possess permanency, but rather impress one with the idea that their structure has the same pockety and irregular characteristics as belong to the limonite ore-deposits in the Southern States. The correctness of this impression can only be proved by actual mining operations, which have not been, up to the present time, sufficiently extensive on this class of outcrops to determine either the extent or permanency of the ore-bodies.

So far as the grade of the various outcrops is concerned, there is but little, if any, difference between those occurring in the igneous rocks, on the contact, or in the limestone. Besides the outcrops of chalcopyrite, bornite occurs in some localities, with heavy spar as the gangue. There is such an occurrence on Deer Creek, which empties into Tofino Inlet, where a fairly high-grade bornite is quite plentiful at and near the surface; but the writer is informed that as depth has been attained, the bornite has given place to chalcopyrite of good grade. A syndicate is developing this property. It appears that bornite is more plentiful northwest than southeast of Clayoquot Sound. Except the deposit on Deer Creek, the writer knows of no other discovery, where bornite has been found in any quantity, to the southeast of Sidney Inlet, which is about 35 miles up the coast from Clayoquot.

The belt of country in which the crystalline limestone and the igneous rocks occur forms a very interesting study in geology. But it is so complicated, and in places the faults are so numerous, though limited in extent, that much time is requisite to make a thorough survey. The mountains on the island vary in altitude from 1,000 to about 7,000 ft. They are covered with a densely heavy growth of timber and underbrush, which renders exploration in the interior extremely difficult. Consequently, prospecting operations, up to the present time, have been confined to the immediate vicinity of the shores of the inland waters and streams emptying into them. The numerous navigable waterways connecting with the Pacific Ocean on the west coast of Vancouver Island have furnished the means, in the past, for prospectors to explore the country near their shores, and in the future will prove one of the most important features to aid in the development of the country, because they will furnish the cheapest possible transportation for supplies, ore, etc.

Mineral occurs in apparently three distinct zones, each of which has a northwesterly trend, while each mineral deposit has its own individual line of strike. The most southerly of these zones is the belt of semi-crystalline slate, which traverses the extreme southern portion of the island from Goldstream to near the headwaters of the San Juan River. This zone furnished, some 30 odd years ago, a considerable amount of placer gold, which was found in the Leach and Sooke Rivers and their tributaries. Northeasterly from this belt of slate occurs the main belt of igneous rocks, which, in places, is several miles in width.

An imaginary line, drawn from Saanich Inlet, on the southeast coast of the island, northwesterly, passing along the head of the Alberni Canal, and thence to the northwest coast at Quatsino Sound, would practically mark the division between the sandstones and conglomerates of the coal-measures and the crystalline area. On some of the numerous islands in the sounds which connect with the Pacific Ocean, deposits of magnetite, with some associated copper pyrites, have been discovered; but on none of them has there been any extensive development work performed.

The Mines and Mill of the Atacama Mineral Company, Taltal, Chile.

By Sidney H. Loram, Taltal, Chile.

The mines supplying ore to this company are situated in three groups: the Guanaco field, about 80 miles N. E. of the port of Taltal (lat. 25° S., long. 70° 30′ W. of Greenwich); the Sierra Orera, about 63 miles S. W. of Taltal; and Paranao, about 42 miles due N. of Taltal, 12 miles N. of the small town of Paposo, once famous for its copper output.

The Guanaco field lies in the center of an absolutely waterless mountainous desert, where not a sign of vegetation can be found for miles. Water is brought about 21 miles by piping from the Cordillera, but only in small quantities, and costs in the Guanaco $7 (= $2 gold) per cubic meter. All supplies and food are sent from the port of Taltal, which in turn draws its supplies from the south of Chile, the only connection with the outside world being by the weekly coast steamer north and south, as the desert is impassable. The field is connected with Taltal by the Taltal Railway, a branch of which runs into the company's works, distant 88 miles.

The Guanaco consists of a hill, about 600 ft. high, rising abruptly out of the sloping pampa (the total elevation being 9,269 ft.), and a much smaller hill adjoining it, the Guanacito. These hills, which are completely warrened with small mines, all of which have produced gold to a greater or less extent, comprise the whole area in which the precious metal is found, within a radius of 18 leagues, with the exception of another hill, about 3 leagues distant, on the very summit of which a chimney of ore was found and worked to a depth of 90 m. with good results—but nothing was found laterally.

The ore is an extremely compact and tough quartz, in which crystallization is microscopic, and, in some cases, absent. The nearest approaches to a definite formation are what are termed "mantos"—bodies of quartz, of an oval, flattened form, of all sizes, usually pink or gray in color, and occurring without regularity. These, in general, carry the gold. Occasionally, in addition to the above mentioned impurities, they are impregnated along the fissures with scorodite (hydrous ferric arsenate), both amorphous and crystalline, and by native sulphur in crystals, either occurring together or separately. The mantos which carry gold to any considerable extent are in nearly every instance less than 120 ft. from the surface. The quartz found at greater depth contains only traces of gold. Several mines have struck, at 270 to 300 ft. depth, copper in the form of tetrahedrite, sometimes almost pure, and in very remunerative quantities, but, as in the case of the gold, without any regular formation. Copper also occurs in small isolated patches near the surface, as silicate and sulphate, but apparently without any conformity or relation to the deeper deposits.

Mining is carried on in the usual national manner; the absence of a regular formation, the want of capital and the universal employment of tributors preventing even an attempt at systematic working. The rule is to follow the pay ore wherever it may lead, regardless of mine roads or levels. No timbering is practiced, and in many cases, where the ore has been plentiful, there are enormous chasms, in which, where the ore has been too poor to mine, great boulders have been left hanging in a way that makes a heavy fall appear inevitable. The natural consequence is that, in many cases, fairly good ore has to be left on account of the difficulty of extraction. This work is chiefly done by "apires"—men who, with raw-hide sacks slung to their shoulders, will carry, on the average, 140 lbs. for a vertical distance of 120 ft., making 28 or 30 journeys per day, over the worst of mine roads and Chile ladders. In the larger mines horse whims are in use or hauling is done by mule and single pulley, while one or two have steam winding engines.

At Sierra Orera the formation is entirely different from the Guanaco. The field is on the inner side of a crescent-shaped hill of gradual slope; the country rock is diorite, and the lodes, which are of thermal origin, consist of crystalline quartz, highly ferruginous and banded. Most of them carry traces of copper, and the deepest workings (300 ft.) show occasional specks of pyrites; but, so far, the ore is perfectly free milling. The gold is coarser than that of the Guanaco, but still fine, and distributed pretty evenly over the whole of the quartz, besides occurring in the country rock where the latter has been favorable to impregnation from the lode. The veins have no common strike; the dip varies between 45° and the vertical. The lodes vary in width from a few inches to 3 ft. From the surface down to about 100 ft. the ore exhibits a general tendency to grow poorer, sometimes accompanied by a pinching of the lode. The method of working, where the dip permits, is to sink as many incline shafts on the lode as the claim will allow, each about

14 by 4 ft. in size, leaving 3-ft. intervals, which are cut through every 12 ft., leaving just sufficient ore standing to prevent a cave.

All accounts, weights and assays are upon the metric system. Ores are purchased upon their fine contents of the precious metal in kilos, higher prices being paid per kilo of metal contained for higher assays, since it is contained in less weight of ore.

As the lots are settled for, they are conveyed by tip wagons to the ore bins, four of which (15 tons' capacity each) deliver between each pair of eight Gruson ball mills. The screens in use are of phosphor bronze, 80 meshes to the linear inch, and the mill is charged with 1,320 lbs. of balls. Each mill requires 11 H.-P., and makes 25 revolutions per minute. The feeding is done by hand, requiring for the eight mills one man by day and one by night. Over considerable periods the output of ore has been 6.5 tons per mill per 24 hours, or, allowing for general stoppages and repairs, 1,300 tons per month.

From the hoppers under the mills the ore is discharged into sacks, which are run by a tramway employing two men by day and two by night, to the sides of the amalgamating pans. Amalgamation is conducted in pans, of which there are in all 22, each 5 by 3 ft. in size, lined with ⅛-in. amalgamated copper plates, from 6 in. from the bottom to within 6 in. of the top. They are geared from the bottom, have iron mullers and shoes (originally intended for grinding), and make 48 revolutions per minute. The tops are covered in, the ore being charged through hoppers, provided with bars at the lower end to prevent stealing. Each has 4 discharge holes, the lowest slightly below the bottom (for which a slight canal is cast in the iron bottom of the pan); the next about 8 in. from the bottom, and the remaining two equally spaced. The three top plugs are boxed in and moved by iron handles running through the side of the housing to prevent theft by discharging portions of the contents while running thick. For the same reason, the discharge canals leading to the agitators are covered. The bottom plug is covered by a padlocked iron cap and is only used when cleaning up.

Each pan is charged with 88 lbs. of mercury, and the ore is added in lots of 1,100 lbs., with sufficient sea water to form a pulp of such consistency that the mercury is broken up and distributed in fine globules all through the mass, which occupies in this state about one-third of the pan. After revolving thus for three hours, more or less, according to the nature of the ore, the amalgamation is complete of both the gold and the silver, the latter being aided by the salt water, which is warm (being cooling water from the condenser). The pan is then filled with water and run for an hour, which allows the mercury to settle to the bottom and adhere to the plates. The plugs are then removed, one at a time (top first), and the ore is discharged into agitators, one serving for eight pans. These agitators are pans 5 by 5 ft. in size, lined with copper plates. The discharge enters at the bottom and overflows at the top. Practically the whole of the mercury and amalgam remain in the first pans, which are ready for another charge of ore (the mercury being renewed only when the clean up is made, while the agitators are cleaned out only once a month.

The copper plates are cleaned each week and dressed. Every six months a general clean up is made, when all the amalgam possible is removed, of which there is a considerable amount, varying according to circumstances, but at times reaching to $15,000. The locking up of this value during the intervals is one of the chief drawbacks to the system pursued.

After leaving the agitators the pulp, which assays on the average $7.08 per ton, passes through spitzkasten, the concentrates from which, assaying about $14.16 and forming about 15 per cent. of the total, are dried in the sun and returned to the mill, while the balance, after passing over blanket strakes 8 ft. long (which just collect sufficient to pay for their trouble), is discharged into a sump connected with a centrifugal pump, working drowned, by which it is elevated to a sufficient height to run by launders to the tailings heaps, where, by means of dams, the finest slimes are got rid of and sent to sea. The tailings average $5.66 per ton, and the actual extraction in bullion, on ore the average assay of which is $41.68, may be taken at 86.5 per cent.

The mill is driven by a Corliss horizontal engine developing 150 H.-P., and two Lancashire boilers, 28 by 8 ft. in size. Australian coal is used, being found more economical than the native lignite. The average consumption is 374 lbs. of coal per ton of ore worked.

The cyanide plant was erected by the writer to treat the dumps already in existence, as well as future tailings. The system is the McArthur-Forrest process, the Cassel Company holding the patent for the use of cyanide in the country. The plant consists of 6 leaching vats, 18 ft. by 6 ft. 6 in. in size, mounted on a common foundation made of three stone walls tied together by cross walls (the plant being right on the sandy beach).

Extraction in this plant is about 80 per cent., from an average assay of about $6.37 to the ton.

ABSTRACTS OF OFFICIAL REPORTS.

St. John del Rey Gold Mining Company, Brazil.

This company's report for the year ending February 28th, 1899, shows that there were 112,755 tons of ore rock raised from the mine and 93,230 tons of ore crushed in the mill of 100 stamps. The recovery was 87,684 oz., crude, equivalent, at the values given, to 70,019 oz. fine gold, or $1,447,293. The average return was $15.52 a ton. Of the total assay value 73.1 per cent. was obtained in the mill by amalgamation and 12.9 per cent. by the second process, known as the oxygen process. The total recovery was 86 per cent. of the assay value. The cost of working was $6.30 a ton stamped, not including taxes and general expenses.

The bullion recovered and sold realized £297,389. The charges were: Taxes, royalty and insurance, £19,460; London expenses, £3,492; renewals and extensions of plant, £30,276; working costs at mine, £120,051; total, £173,279, leaving a balance of £124,110. This was disposed of as follows: To reserve fund, £10,000; balance of interest paid during reopening of mine, £41,768; interest on bonds, £16,831; directors' fees, £2,565; dividends (11¼ per cent.), £51,300; total, £122,464, leaving a balance of £1,646 to current year.

The directors' report says that the results of the year were very satisfactory. The balance sheet is equally satisfactory, for the large item that formerly appeared as an asset, for interest paid out of capital during the reopening of the mine (£62,902) has now been entirely written off, and the amount applied in paying off debentures and loans, and providing working capital.

The more important mining works during the year were the completion of the masonry arching the whole length of the 9th Horizon, for transport, ventilation and to allow the excavation to be filled up with rock and waste sand as the mineral is removed. Exploration work has been carried on with favorable results.

It has been previously explained that the expenditure upon additional power must be expected in the future; the immediate requirements of the establishment are, however, seriously affected by the extraordinarily small rainfall, which proves the lowest on record. The superintendent expressed uneasiness early in the season as to its probable effect on the returns; he found it necessary in February to restart the steam and oil engines, which were acquired last year to meet a similar but less serious drought. He proposed a scheme for damming the waters of the Crystaes Stream some distance above the head weir, and transmitting the power from the fall thus obtained to the mine by electricity, which he anticipated would give an additional 100 H.-P. effective. Approval was telegraphed and the work is proceeding; but several steam engines were bought for use at present.

Tharsis Sulphur and Copper Company, Spain.

The directors' report for 1898 says that at the Tharsis Mines the mineral extracted weighed 195,205 tons, against 231,384 tons in 1897—a decrease of 36,179 tons. The ore from these mines is now mainly set apart for local treatment, the export supplies being almost wholly drawn from Calanas. On fixed property accounts there is a decrease of £118 for working plant removed, and the sum of £3,104 11s. 7d. was written off for depreciations. The amount expended on preparatory works and explorations was £7,166, and in accordance with the method adopted in previous years there has been charged against 1898 the sum of £4,277.

At the Calanas Mines the overburden removed during the year was 314,474 cubic meters, against 338,710 in 1897. The removal still to be overtaken will be mainly in the eastern extension of the open cast. As regards the western division not only has the removal of overburden been carried out at a very low cost, but the mineral thus uncovered and made available has been found to be of a quality superior to what was anticipated, and has been found specially useful in furnishing supplies of ore suitable for export.

The mineral extracted weighed 308,740 tons, against 244,991 tons in the previous year, being an increase of 63,749 tons. In addition, there were 90,308 tons of cupreous sterile removed, a material the extraction of which is necessary to facilitate mining operations, but which, it is found, can be profitably laid down for local treatment. On the fixed property accounts there is an increase of £624, principally for new railway lines required, and new hutches for mineral. For the usual depreciations there has been written off the sum of £4,880. There has been expended on preparatory works and explorations £984, and there has been written off against 1898 the sum of £1,545, being one-third of the total outlay for the past three years, in accordance with the usual practice.

At the Lagunazo Mines it was found necessary to remove during the year only 35,657 cubic meters, the removal of overburden here being now well advanced. The mineral extracted weighed 82,145 tons, against 89,574 tons in the previous year, a decrease of 7,429 tons. The ore from this mine is all reserved for treatment on the spot. It continues to be of fair quality and yielded during the year a satisfactory quantity of copper.

The total quantity of mineral raised at all the mines during the year was 586,090 tons (exclusive of cupreous sterile), against 565,949 tons in 1897, being an increase of 20,141 tons—the quantities raised both for export and for local treatment being in excess of those of the previous year. The rainfall, upon which the production of copper greatly depends, was less than in 1897, the figures being, at Tharsis 20.43 in., and at Calanas 20.87 in., against 34.69 in. and 28.27 in. respectively. Notwithstanding this diminution, however, there was no scarcity of water, the reservoirs at the end of 1897 being all well filled; and the production of copper went on steadily during the year without interruption. With one exception, the quantity of precipitate was the largest ever produced at the mines. Since the end of the year there has been an abundant rainfall.

The increase in railway traffic was fully kept up, the quantity of ore brought down from the mines and of manganese ore and other public traffic continuing to be of large proportions. The shipments made from the shipping pier at Corrales were the largest on record, being in all 420,267 tons. Of pyrites there were shipped 378,085 tons, against 310,702 tons in 1897, an increase of 67,383 tons. Of copper precipitate the shipments were 8,823 tons, against 8,906 tons in the previous year.

The metal works were steadily at work during the year, and although the supply of cinders is insufficient for their employment to their full capacity, they did a large amount of profitable work, the quantity of refined copper produced having only on one or two occasions been exceeded in the history of the company. The costs of production still continue to be on a low scale.

The net profits for the year were £549,964, from which dividends amounting to £343,750 (27½ per cent.) were paid, leaving a balance of £6,214. This, added to £14,165 brought forward from previous year, left a balance of £20,379 at the close of the year.

TUNNEL LIGHTING.—In carrying out the repairs of the Torcenay Tunnel on the Eastern Railway of France, a portable electric light plant is employed. A railway truck carries a petroleum engine driving a dynamo, which furnishes current, both for propelling the truck by means of a motor and for lighting the works in the tunnel with 4 to 6 arc lamps or 20 to 40 incandescent lamps.

QUESTIONS AND ANSWERS.

(Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be obtained from a consulting expert. Nor can we undertake to give advice about mining companies or mining stocks. Brief replies to questions will be welcomed from correspondents. While names will not be published, all inquirers should send their names and addresses. Anonymous questions will not be answered. Preference will, of course, always be given to questions submitted by subscribers.—Editor E. & M. J.)

Tin Supply.—Where is the tin supply of the United States obtained from? Why cannot the supply be increased, in view of the present high prices?—N. C. S.

Answer.—Most of the tin imported into the United States comes from the Straits Settlements, and is obtained from the alluvial deposits of the Malay Peninsula. Formerly our tin was bought at second hands in Great Britain and Holland, but in the last few years, since our tin-plate industry began to be of large proportions, it is bought and imported direct. A little Banka tin comes to the United States, and also a little from Australia, but the proportion is small. If our trade with South America is extended as it ought to be, the tin from Bolivia, which now goes to England, will probably come here for a market. As to increase of supplies, it is quite possible that the production will be greater next year. It can be extended in a comparatively short time, as the ore is obtained chiefly from alluvial deposits, and there are known to be areas not yet worked in Perak and other districts of the Malay Peninsula. The metallurgy is also comparatively simple, not requiring expensive plants or erections, so that production can be enlarged with small expenditure of capital.

Gold in Central Asia.—I have seen reports of the existence and production of gold in Turkestan and Western China, but cannot find any definite information. Have you any data on this point?—S. S. McD.

Answer.—Some information is given in "The Mineral Industry," Volume VII. According to the Russian engineer Toravako-Pokorski, the Khanate of Bokhara, which is entirely under Russian influence, produces from 115 to 130 kgs. of placer gold per annum, the entire output being exported to Afghanistan. Travelers through the Russian Pamirs report the existence of veins of gold and silver ore and state that some day the country will be a large mineral producer. According to R. Helmhacker ("Engineering and Mining Journal," Volume LXVI, page 398), gold-bearing gravel has been found in Russian Turkestan in the streams flowing from the eastern Pamirs. So far the most important deposits have been found in the upper tributaries of the Sir-Daria and in the small streams falling into the steppe lakes Kara-Kul and Biul-Kul. Very little prospecting has been done so far, and no regular workings have been carried on.

According to Russian reports, the existence of gold in Eastern Turkestan and Chinese Tibet was known to Russian engineers early in the 18th century, and a report made by Theodore Troushnikoff to Prince Jagarin, Governor-General of Siberia, in 1713, mentions the working of gold placers in Little Bokhara, sometimes known as Kashgaria. The brothers Atanassoff, who crossed Turkestan in 1790-91, reported that gold and precious stones were obtained by washing at Karia and Chotana. Prjevalski, in the "Travels in Central Asia," refers to the same workings. The native traditions run back for centuries, and it seems quite probable that gold was obtained there at a very early date. K. J. Bogdanovitch, a Russian explorer, stated recently in the "Echo des Mines," that the Chinese had for many years obtained gold from the streams having their origin in the Kuen-Lin Mountains, and further explorations are to be undertaken there. The evidence of the existence of gold in the localities you mention is thus cumulative. It would not be possible, however, to undertake any prospecting in those regions except under Russian military protection.

PATENTS RELATING TO MINING AND METALLURGY.

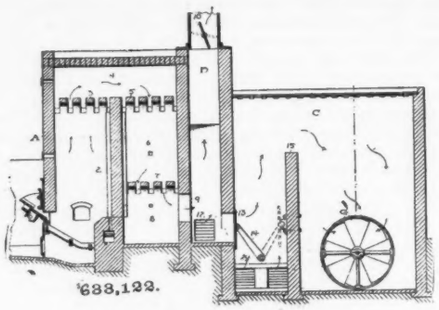
UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending September 19th, 1899.

633,122. DRYING-KILN. Franklin D. Cummer, Cleveland, Ohio. Assignor to the F. D. Cummer & Son Company, same place. In a drying-kiln, a furnace provided with a subdivided combustion-chamber in the line of draft, having open grate-bars in each section, a space above the division-wall and said grate-bars and a space below said grate-bars in both sections, in combination with a smoke and air stack provided with a controlling-damper.

633,123. MECHANICAL DRIER. Franklin D. Cummer, Cleveland, Ohio; William M. Cummer, administrator of said Franklin D. Cummer, deceased. Assignor to the F. D. Cummer & Son Company, same place. A drying-cylinder having inlet-openings between its ends for hot gases, and shields for said openings forming the inner wall of a draft-passage from said openings to the interior of the cylinder.



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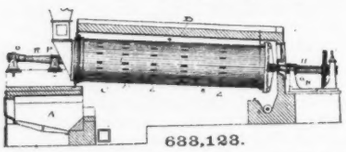


633,123.

623,124. MIXING-MACHINE. Will M. Cummer, Cleveland, Ohio. A sectional shaft for a mixer having stirring-blades with flanged heads and fastenings, said heads adapted to completely overlap the joints of the sections and fasten them together.

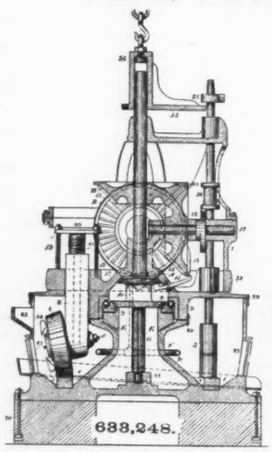
633,151. CASTING APPARATUS. William J. Patterson and Alfred M. Acklin, Pittsburg, Pa. Assignors to Heyl & Patterson, same place. A suitable structure, an endless traveling carrier supported thereby, said traveling carrier consisting of open links, axles passing through the adjoining ends of said links, removable filler-blocks inserted within said links between the axles at each end thereof, and molds secured to said blocks.

633,163. FRICTIONAL SELF-TIGHTENING FASTENING FOR CAMS, PULLEYS, ETC. Louis T. Sicka, Denver, Colo., Assignor to the Denver Engineering Works Company, same place. In combination with a cam, pulley or rotary body, a shaft provided with a recessed, eccentric portion, a gib resting in the recessed portion against the eccentric surface thereof and confined within the rotary body, and a key for forcing the body against the said surface, thereby forming a self-tightening fastening and also preventing endwise movement.

633,206. PROCESS OF AND APPARATUS FOR REFINING OR CRYSTALLIZING SOLUBLE CRYSTALLINE SUBSTANCES. Casper W. Miles, Cincinnati, Ohio. The process consists in passing a strong solution of the crude substance successively through a series of tanks, and subjecting the solution to the action of a controllable refrigerant in the several tanks.

633,219. THERMOSTAT-VALVE. George Scarfe, Towanda, Pa. The combination with a valve for controlling the flow of a heating agent, of a diaphragm exposed to supply-pressure and connected with the valve for communicating motion thereto in one direction, a counterbalancing device for opposing supply-pressure, a thermostat, and mechanism actuated by the thermostat for advancing the weight on the lever toward and from its fulcrum.

633,248. STAMP AND ROLLER CRUSHER AND PULVERIZER. Adolph J. Petter, Randsburg, Cal. A circular mortar having an annular die fixed therein; stamps, the stems of which are guided in a frame which is rotatable about a shaft forming the center of revolution, rollers journaled upon the revoluble frame between



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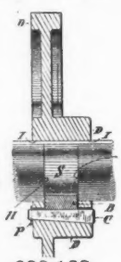

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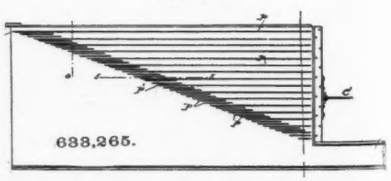


633,265.

the stamps with their faces adapted to travel upon the dies, and a mechanism carried by the revolving frame, and including horizontal shafts and driving gear, and cams on said shafts whereby the stamps are raised and allowed to fall upon the dies while advancing along the line thereof.

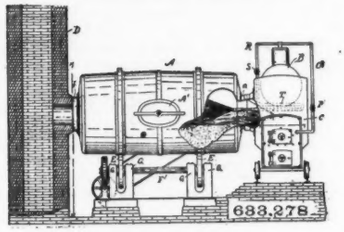
633,249. METHOD OF FORMING ELECTRODES FOR SECONDARY OR STORAGE BATTERIES. Henri Rathier, Paris, France. The method consists in forming suitable supporting plates or grids, immersing and pickling the same in acid, mixing a suitable paste composed of red lead and a suitable vehicle, applying the same to the grids or plates to be used for one pole of the battery, mixing in like manner a paste composed of 1 part of red lead and 5 parts of litharge, and then applying such paste to the grids or plates to be used for the other pole of the battery.

633,254. DRY CONCENTRATOR. Frederick W. Wood, Los Angeles, Cal. The combination of a pervious traveling belt; means for feeding ore upon the belt; means for forcing air through the belt; a shutter movable toward and from the belt; and an exhaust having its intake above the shutter.

633,265. CONCENTRATING-TABLE. Ulysses S. James, Helena, Mont. Assignor of one-half to Robert A. Bell, same place. A concentrating-table provided on its surface with a series of substantially parallel, longitudinal riffles extending from the forward end rearward and terminating short of the rear end of the table, on a substantially diagonal line running downward and rearward, and a series of supplemental riffles interposed between the rear extremities of the aforesaid riffles.

633,272. PROCESS OF MANUFACTURING CHLORATES BY ELECTROLYSIS. Thomas Parker, Tettenhall, England. The method consists in passing a current of electricity through a solution of an alkali metal chloride while the latter is covered with a layer of some buoyant non-conducting material, whereby the gases disengaged are scrubbed, and maintaining the current density during the operation, at about 20 amperes per square foot.

633,278. APPARATUS FOR ROASTING REFRACTORY ORES. Robert A. Stewart, Cerrillos, N. Mex. The combination of a rotary ore-retaining cylinder having contracted inlet and outlet end openings for the admission and escape of heat or other products of combustion, adapted to retain the ore while being roasted; means for



supporting and rotating said cylinder; a furnace; a steam boiler or generator located over said furnace, said furnace being adapted to supply heat both to said boiler and said rotary ore-cylinder; a superheating steam-coil located in said furnace; and a steam-pipe communicating from said boiler to said superheating steam-coil, and from thence to the ore-retaining cylinder.

633,287. CARBURETER. Theodore G. Lewis and Frederick M. Bailey, Buffalo, N. Y. Assignors to the Buffalo Dental Manufacturing Company, same place. The combination with a reservoir provided at its top with a valve-case having air inlet and outlet nozzles and a gas-outlet nozzle, of a rotary valve arranged in said case and having a stem extending upwardly through the case, and provided with a transverse air-port arranged to connect said air inlet and outlet nozzles, a port leading from said transverse port to the interior of the reservoir, and a gas-port arranged to connect the gas-nozzle of the valve-case with the reservoir.

633,312 and 633,313. APPARATUS FOR MAKING CONCRETE. Peter C. Hains, Jr., and Charles R. Weaver, Baltimore, Md.; said Weaver assignor to said Hains. The combination with a mixing-receptacle provided with a discharge-aperture of reduced diameter at the bottom, closing devices for said aperture, and interrupting devices below said aperture for deflecting the material laterally to facilitate the mixing of the materials.

633,317. APPARATUS FOR MANUFACTURING ILLUMINATING-GAS. Louis J. Hirt, Brookline, Mass. The combination of the following instrumentalities: A gas-generator provided with an air-inlet, and with an outlet-pipe for the products of combustion, a valve in said outlet-pipe, a chamber containing baffling material connected to said generator through said gas-outlet pipe, a hydrocarbon-supply pipe communicating with said chamber and provided with a valve, an air-supply pipe connected to said chamber and provided with a valve, and an illuminating-gas supply pipe connected to said chamber and to a supply of illuminating-gas of low candle-power and provided with a valve.

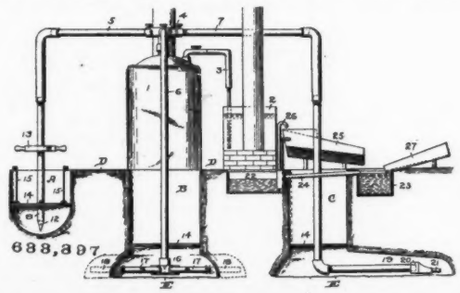
633,319 and 633,320. CARBURETER. Edward R. Inman, Indianapolis, Ind. A carbureter-chamber formed integral with the walls of the cylinder of a gas engine.

633,326. APPARATUS FOR CASTING METALS. William E. May, London, England. Assignor to the Ellis May Vacuum Steel Syndicate, Limited, same place. The combination with a vacuum-chamber, of a mold located therein provided with an inlet for molten metal at its highest point, a movable plunger working in said mold located adjacent to said inlet and closing one end of said mold.

633,348. COAL UNLOADING AND DISTRIBUTING APPARATUS FOR USE IN BALLAST BURNING. Zalmon G. Simmons, Jr., Thomas Forgham and George M. Bennett, Kenosha, Wis. The combination with the transferring-car, of a transferring means operating to transfer the coal from the coal-car to the transferring car, a lateral conveyor to receive the transferred coal, and a shoveler's platform supported by the transferring-car.

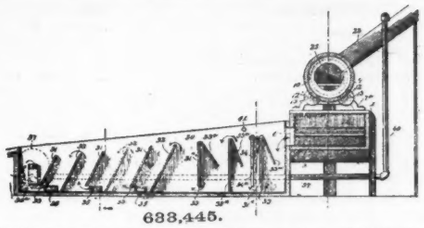
633,349. FURNACE. William Swindell and John C. Swindell, Allegheny, Pa. The combination of a combustion-chamber, gas-supply ports communicating with said chamber at the end thereof, means for supplying gas to said ports, discharge-ports in the vertical wall of said combustion-chamber opposite the gas-supply ports, waste-flues leading underneath the combustion-chamber from said discharge-ports to a point of exit, horizontal air-flues above said waste-flues and extending between the same and the floor of the combustion-chamber, lateral air-flues adjacent to the sides of the waste-flues and communicating with said horizontal air-flues at one end, a transverse air-flue beneath said lateral air-flues and communicating therewith at the other end, means connecting said transverse flue to the atmosphere and means connecting said horizontal flues to the combustion-chamber.

633,397. APPARATUS FOR MINING PRECIOUS METALS. Samuel R. Stambaugh, Chattanooga, Tenn. The combination with a steam-generator, of a shaft-sinker, consisting of an open pipe, an excavation-closure through which the pipe loosely passes, a flexible pipe connecting the shaft-sinker to the steam-generator which



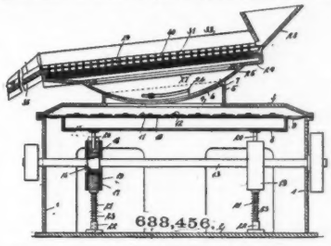
permits lateral and vertical movement of the shaft-sinker when in use, means for manipulating the shaft-sinker in relation to the closure, and means for raising and lowering said closure independently of the shaft-sinker.

633,445. ORE SEPARATOR AND AMALGAMATOR. Henry Fuller, Chicago, Ill. The combination with a settling-chamber, of a series of amalgamated plates arranged therein to form a tortuous channel for the circulation of water and ore, and a permanently magnetic collecting-plate suspended between adjacent amalgamated plates and



provided at its lower edge with a series of fingers which permit of the circulation of liquid and ore.

633,456. ORE-SEPARATOR. William Hooper, Ticonderoga, N. Y. Assignor to Charles H. Unverzagt, Baltimore, Md. An apparatus comprising a frame or casing arranged at a longitudinal incline, a bed of flexible material secured in the frame or casing, and inclined from its longitudinal center downward to the sides; a series of separating-strips on the upper surface of the bed and arranged at



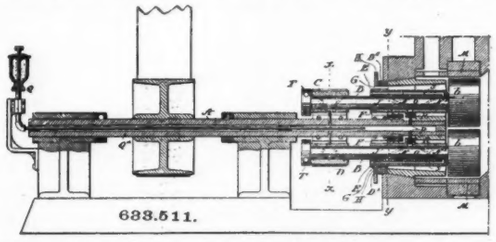
an equal angle from the longitudinal center of the bed to the side edges, the said strips forming channels adapted to receive the heavier particles and direct them to the outer ends of the strips., the strips being arranged between the longitudinally extending plates and the frame of the machine, and serving to direct the sand or tailings from each side of the bed to the central conduit.

633,474; 633,475; 633,476 and 633,477. ROTARY PUMP. Robert J. Northam, Los Angeles, Cal. A rotary pump comprising a casing, a rotary shaft consisting of sections having screw-threaded ends, the screw-blade having an internally screw-threaded hub, within which the adjacent screw-threaded ends of the shaft-sections engage, and a peripheral shell contiguous to the casing, the guide having a hub, radial spokes, a peripheral ring and vertical brackets, extending upwardly and downwardly from the ring, and a set collar, whereby the hub of the guide is secured against the hub of the screw-blade.

633,478. COMBINED ELECTRIC MOTOR AND PUMP-HEAD. Robert J. Northam and George E. Nolan, Los Angeles, Cal. The combination of a suitable frame, a pump-shaft journaled in the frame, an electric motor secured to the frame and the shaft of the motor having mechanical connection with the pump-shaft.

633,486. CLAY-SCREENER. Edward B. Rader and Henry A. Rader, Coplay, Pa. A clay-sifter, comprising a transversely slotted cylinder, adapted to receive the clay, means for turning the cylinder, and revolving disks having arms entering said slot.

633,511. PULVERIZING-MACHINE. Gideon Frisbee, Philadelphia, Pa. A die, a driving-shaft, supplemental revoluble shafts carried by the driving shaft, pulverizing-rolls carried thereby, means for regu-

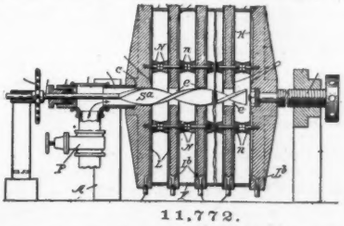


lating the spread of said supplemental shafts, comprising bearing-blocks having adjustable stop mechanisms to engage with the inner periphery of a disk mounted upon the main shaft.

633,533. APPARATUS FOR MAKING LEAD OXIDE. Samuel Pope and George V. Barton, Runcorn, England. An apparatus comprising a closed pot or vessel adapted to contain a charge of lead, means for heating said pot, a collecting-chamber, an outlet from the pot to the collecting-chamber, means for keeping the lead in motion, a baffle-plate or curtain projecting laterally from the rear side of the outlet toward the center of the pot and extending downwardly into position to catch the film of oxide and means for oxidizing the surface of the lead and carrying the oxide through the outlet into the collecting-chamber.

633,544. ELECTROLYTIC APPARATUS FOR PRECIPITATING METALS. Harry S. Badger, Denver, Colo., assignor of one-half to Charles W. Caryl, same place. A precipitating-tank comprising the tank-body having a mercury-coated surface in its bottom, a revoluble hollow shaft suspended in the tank and provided with hollow arms having perforations on their lower sides to deliver air or vapor in proximity to the said surface, and an electric circuit in which the hollow shaft agitating-arms and mercury-coated surface are located.

Reissue No. 11,772. FILTER-PRESS. John H. Hinken, Louisville, Ky., assignor to the J. E. Turney Drying Machinery Company, Chicago,



Ill. Filed July 13, 1899. Original No. 607,929, dated July 26th, 1898. In a filter-press, in combination with filter-plates having induction-apertures, a clearing-blade penetrating the plates at such apertures, and suitable means for rotating said blade to clear the apertures.

PERSONAL.

Mr. Lew E. Aubury, mining engineer, of Los Angeles, Cal., is in San Francisco.

Mr. Frederick S. Harris, who has been recently in Mexico, is at present in New York City.

Mr. Algernon Del Mar of Victor, Cal., is examining mines in the southern part of that State.

Mr. H. H. Hirst of the University of California has been appointed a special agent of the National Irrigation Bureau.

Mr. Charles R. Parker of Rossland, B. C., has returned to that city after an extended visit to the Eastern States and Provinces.

Mr. J. K. Inkater of Rossland, B. C., will shortly make a further examination of quartz properties in the State of Washington.

Mr. John W. Mackay spent 10 days at the Grand Reef Mine in Cochise County, Ariz., recently. Large operations may be expected there.

Mr. W. H. Jeffery, mining engineer, has been examining the Sunset No. 2 at Rossland, B. C., and has returned to Slocum City, his present address.

Mr. C. W. Merrill, who has been putting in a cyanide plant at Marysville, Mont., is to install a similar one at the Homestake Mine, South Dakota.

Mr. J. A. Ferson, assayer at the Satellite Mine at Campo Seco, Cal., is superintendent of the California Copper Smelting Company, at Madera, Cal.

Mr. Samuel A. Elkington has joined the staff of the Trade Paper Advertising Agency of New York City and will have charge of the Philadelphia office.

Mr. F. C. von Petersdorff has left the employ of the Ibex Mining Company, Leadville, Colo., to become manager of a mining property in Sonora, Mexico.

Mr. K. M. Barrance, late of the Thames and Otago Schools of Mines, has been appointed assistant instructor to the Waihi School of Mines, New Zealand.

Mr. Guido Cemenza, chief engineer of the Central Electric Light and Power Company, of Milano, Italy, is in this country and will attend the electrical convention in Philadelphia.

Mr. Geo. H. Bradbury, who is interested in the borax industry at Searles, Inyo County, Cal., has returned to the mines after pruchasing machinery at San Francisco for the mines.

Mr. J. L. Parker, mining engineer of Rossland, B. C., has accepted a position at the North Star Mine, East Kootenay District, and has left Rossland to enter upon his duties at the mine.

Mr. M. Leyde, chief engineer of Ludwig Loewe & Company, of Berlin, Germany, is in this country investigating American foundry practice. The firm intends building 2 new foundries in Europe.

Mr. A. P. Brayton, Sr., president of the Pelton Water Wheel Company of San Francisco, Cal., has returned from a successful European business trip, and is expected in San Francisco about October 25th.

Mr. W. E. S. Strong, superintendent of the Detroit works of the American Car and Foundry Company, has resigned to accept a position as superintendent with the Pratt & Whitney Company of Hartford, Conn.

Mr. J. H. Means, mining engineer, of San Francisco, recently connected with the State Mining Bureau of California, has sailed on the "Coptic" for China to expert some mining properities for an Eastern syndicate.

Mr. John Hays Hammond has been appointed consulting engineer for the Mijnpacht Randfontein Gold Mines Company, Limited. Mr. Pope Yeatman has been appointed general manager, and Mr. J. B. Pitchford consulting mechanical engineer.

Mr. W. A. Majors, for years purchasing agent for the Sloss Iron & Steel Company, has tendered his resignation and has accepted a position with the Empire Steel Company of New York. He is succeeded by Mr. Henry Hiden, who served under him.

Dr. Eugene A. Smith, State Geologist of Alabama, and also secretary of the Alabama Scientific and Industrial Society, has accepted the position of superintendent of the mineral display at the Alabama State Fair, to be held in Birmingham November 7th to 17th, inclusive, and is at work already gathering the material for the display.

We want the present address of a certain J. H. Smith, who, we believe, was also known under the name of Geo. Ryall, of Kalispell, Montana. Said Smith was in New York in March, 1899, and was heard from in Portland, Oregon, in April. We shall be greatly obliged to any of our readers who can send us any information as to his subsequent movements or present whereabouts.

Mr. J. H. McCune, formerly furnace manager for the Woodward Iron Company, and later with the Tutweiler Coal and Iron Company, has accepted the position of furnace manager for the Sloss Iron and Steel Company, vice Mr. Kenneth Robertson, resigned. M.r McCune has taken hold of the position already. It is stated that Mr. Robertson will be identified with other iron interests in the Birmingham District.

Mr. J. H. Tibbits, mining engineer, passed through New York last week on his return from a 10 months' stay in Nova Scotia, where he has been superintending the opening up and equipment of a mine. He expects to spend some time examining properties in the Big Bug, Globe and Tombstone districts in Arizona before returning to his home in Shasta County, California.

OBITUARY.

William Cooke died in Paterson, N. J., September 29th, aged 69 years. He was born in Albany, N. Y., in 1830. Shortly after his birth the family removed to Matteawan, N. J., and later to Paterson. William Cooke, with his brothers, John, Watts and James, worked together as journeymen in the locomotive works. In 1857 William went to Scranton, Pa., and organized the firm of William Cooke & Co. Afterward the business of that concern was merged with the Dickinson Manufacturing Company, with which Mr. Cooke served as director and superintendent of the locomotive department until 1868, when he returned to Paterson, and, with parties, organized the Passaic Rolling Mill Company. He was president of that concern until 1873, when he withdrew and formed a partnership with James Beggs in the machinery business in New York. For the past 12 years Mr. Cooke had not been actively engaged in business. A wife and four children survive.

G. E. Stechert, a publisher of technical and industrial books, died of heart failure in New York, September 26th. Mr. Stechert was born at Potsdam, Germany, on August 6th, 1840. Until his 20th year he was employed in his father's bookbindery, and later went to Thorn in West Prussia. In 1865 he came to New York, entering the employ of B. Westermann & Company, remaining until 1872, when he made a short visit to Germany. On his return he founded the firm of Stechert & Wolff in Bond Street, New York. In 1876 Mr. Wolff withdrew, and Mr. Stechert alone carried on the business until 1897, when he took into partnership Mr. Alfred Hafner, under whose management the business will be continued. Mr. Stechert established branch offices in Leipsig, London and Paris, and did a large library business with American universities. He was a member of the American Library Association since 1877, and the American Museum of Natural History. His loss is keenly felt by his friends and business associates.

SOCIETIES AND TECHNICAL SCHOOLS.

National Irrigation Congress.—The eighth annual session was held in Missoula, Mont., on September 25th to 27th. The congress was of opinion that the General Government make the arid lands in the United States accessible by using part of the money used in river and harbor improvements for constructing storage reservoirs in the mountains at the headwaters of the great rivers. The next annual congress will be held in Chicago in 1900.

Harvard University.—Over 700 students were registered in the Cambridge department of the Harvard Summer School in July and August, the attendance being the largest on record. Among the faculty changes announced for the coming year, Prof. Sanger of Washington University, St. Louis, has been appointed assistant professor of chemistry. Dr. Asaph Hall has been appointed lecturer on celestial mechanics, and Messrs. J. B. Woodworth, C. Palache, and F. Russell have been made members of the faculty of arts and sciences.

Lehigh University.—The college year opened September 27th. The freshman class is unusually large, numbering 160 men. Newly appointed instructors are: Robert M. Wilson, Cornell, '96, in electric engineering; Barry MacNutt, Lehigh, '97, to have charge of the freshman laboratory work; Amasa Trowbridge, Sheffield Scientific School, '91, instructor of advanced machine-designing; Herman Schneider, Lehigh, '94, instructor in architecture in the department of civil engineering. The department of mechanical engineering offers this year a course in marine engineering. This course brings in work on marine boilers, engines, and the principles of hydraulics applied to shipbuilding.

Michigan College of Mines.—The college year began October 2d, with the largest attendance yet recorded. Very few changes have been made in the course of study and none at all in the principal professorships, although there are quite a number among the instructors and the assistants. In the department of chemistry, E. A. Franke, '99, will serve as instructor, while Ralph C. Works and H. A. Collin will be assistants in the same department. C. D. Hohl will be the assistant in the department of physics, while A. J. Houle, for the past 3 years instructor in civil and mining engineering, has resigned to become the assistant mining engineer at the Copper range mines, where R. T. Mason, an alumnus of the college, is chief engineer; the vacancy created by Mr. Houle's resignation has not yet been filled.

INDUSTRIAL NOTES.

The Metropolitan Compound Manufacturing Company, of Brooklyn, N. Y., reports the receipt of several large orders for its boiler compound during September.

Dickman & Mackenzie, mining engineers and chemists of Chicago, have enlarged their laboratory in the Rookery Building, taking in the rooms formerly occupied as offices.

The Jencks Manufacturing Company of Sherbrooke, Que., has sold to the Snow Shoe Mine in the Boundary Division of British Columbia a 4-drill compressor, and another to the Morrison Mine in Summit Camp.

Rogers, Brown & Company, pig iron brokers, have established an office in Birmingham, Ala., where they will be represented by W. L. Sims & Company. This firm has been handling Birmingham iron for years.

J. George Leyner, of Denver, Colo., shipped 2 large air compressors to the Westport Coal Company of Westport, New Zealand, completing an order for 6 compressors from this company, and has just booked an order for an 8-drill air compressor for Guerrero, Mex.

The George V. Cresson Company of Philadelphia, Pa., is to furnish the Imperial Steel Company of Japan, a set of Buchanan crushing rolls. The company has also orders for crushing machinery from several cement works, and has an order for a power transmission plant for a mill in Mexico.

The Western Elaterite Company, with an office in Denver, has been incorporated in Colorado to do business in mining, refining, manufacturing and handling elaterite, gilsonite, asphaltum and oils throughout the United States. The capital stock is $50,000, paid up, and the directors are C. A. Armstrong, E. J. Yetter and L. E. Eppich.

The Carnegie Steel Company of Pittsburg, Pa., has, through L. Kayatayama, imperial architect of Japan, taken an order for 3,000 tons of structural iron and steel, for a palace for the Crown Prince of Japan at Tokio. The palace will be 3 stories high, with 400 by 300 ft. base, and will be constructed especially to withstand earthquakes.

The Joliet, Ill., plant of the Pressed Steel Car Company is expected to be in operation by December, turning out 30 cars a day. Arrangements have been made with the Illinois Steel Company to supply 400 tons of plate a day. January 1st the company intends to have a capacity of 130 cars a day in its 3 plants, requiring 1,600 tons of steel plate.

September 12th, the W. S. Tyler Wire Works Company of Cleveland, O., changed its name to The W. S. Tyler Company. This change was made as a matter of convenience, there being no change whatever in the management, W. S. Tyler remaining as president, and Proctor Patterson, secretary and treasurer. Within 2 or 3 years this company's business has been greatly enlarged and the nature of it somewhat changed.

Ground will soon be broken at Perth Amboy, N. J., for the Standard Underground Cable Companys' plant, to cost about $200,000, for which plans are being completed by H. J. Lewis, civil engineer, of Pittsburg, Pa. The plant will make both underground and submarine cables, including submarine cables of great length. The company may be ready in time to bid for the contract for the cable to be run from San Francisco, via Hawaii, to Manila.

The Jackson Drill and Manufacturing Company of Denver, Colo., reports recent shipments of its Jackson hand power rock drills to the following parties: Nielson Mining and Smelting Company, Bed Rock, Ariz.; Markeen Copper Company, Clifton, Ariz.; Nodolfo Dresel & Company, Monterey, Mexico; S. B. Wilson, Ohio City, Colo.; Black River Mining Company, Ironton, Mo.; Baxter & Kearns, Walsenburg, Colo.; British American Gold Mining and Trading Company, Buster Mines, Prescott, Ariz.; Free Coinage Union Mine, Alta, Utah.

The Sharon Steel Company has been incorporated under Pennsylvania law with $3,000,000 capital. The company proposes erecting at Sharon, Pa., an open-hearth steel mill with a

capacity of about 1,000 tons daily, and also a blast furnace of about 400 tons capacity. The plant is to be completed in a year and a half, but part of the works are to be ready for operation in 10 months. The proposed officers and directors are F. H. Buhl, president; David Adams, treasurer, and Nevin McConnell, superintendent, Jas. P. White, of Sharon, and George Dorr, of Pittsburg.

Robert W. Lyle, general manager of the Mexican Clay Manufacturing Company of Mexico City, Mexico, states that recent reports regarding the poor quality of Mexican clays as material for sewer pipe were probably circulated by former managers, who had been discharged for incompetence. The company is manufacturing successfully 24 in. sewer pipe, and is to erect 6 more 30-ft. kilns, another steam sewer pipe press and more grinding machinery. Paving brick may be manufactured in the future. The machinery that has given such good results was supplied by the American Clay Working Machine Company of Willoughby, O.

The Bullard Machine Tool Company of Bridgeport, Conn., has let a contract for a new blacksmith shop, 40 ft. wide and 60 ft. long. The side walls are of brick, and the roof trusses of steel. The Berlin Iron Bridge Company, of East Berlin, Conn., has the contract for the entire building. The Berlin Company is also erecting in the village of Baldwinsville, N. Y., between the towns of Van Buren and Lysander, a plate girder bridge consisting of 3 spans of 85 ft. each. The bridge has a roadway of 30 ft. wide and 2 sidewalks 7 ft. wide. The flooring is of buckle plate carrying a concrete roadway. The bridge is designed to carry a double track electric street railway line, besides the ordinary traffic.

The Standard Chemical Works of Camden, N. J., recently organized with $200,000, with James C. Elms, president; Walter S. Burns, vice-president and treasurer; Dr. H. B. Eigelberner, chemist and superintendent. The company has purchased the phosphate tartar plant and alum plant formerly owned and operated by the United States Chemical Company on Cooper's Creek and railroad sidings from the Camden & Amboy Division, Pennsylvania Railroad. The main building is 2 stories, 205 by 120 ft., with a smaller 4-story building, 100 by 60 ft., adjoining the power plant, 60 by 60 ft., containing tubular boilers, a Corliss engine of 250 H. P. and 2 artesian wells. At present the company is making phosphatic chemical combinations for large chemical and technical supply houses, and will manufacture tri-sodium phosphate for treating

The Blue Mountain Iron & Steel Company has been incorporated under Maryland laws to engage in mining iron and other ores, operate blast furnaces, etc. The company owns 10,500 acres of land, comprising the Cotoctin iron district in Frederick County, on the Western Maryland Railroad. The prospectus of the company will state that between 300 and 500 tons of ore can be mined daily, showing nearly 80% peroxide of iron. The managese ore shows 85%. It is further to be stated in the prospectus that iron can be produced now at $8.82 per ton. Among the other products of the company will be mineral paints and manganese ore. The company will issue first mortgage 5% bonds. The Cotoctin property is estimated as worth over $1,000,000. The officers of the company are: Jerome Keeley, president; William B. Price, vice-president; Abraham Sharp, treasurer, and Edward C. Pritchett, secretary. The directors are Jerome Keeley of Philadelphia, William B. Price, Abraham Sharp, Edward C. Pritchett, O. A. Kirkland, Ernest Sharp and Charles W. Miller, all of Baltimore.

TRADE CATALOGUES.

The Crescent Steel Company of Pittsburg, in the September number of its publication, called "Sparks from the Crescent Anvil," has articles on tempering and hardening steel.

The Westinghouse Electric and Manufacturing Company of Pittsburg, Pa., continues to issue its admirable series of illustrated catalogues. No. 147D treats of Westinghouse multipolar generators and motors for direct connect lighting and power; No. 189B describes plunger type switches for 1,100 and 2,200 volt circuits, while No. 231 contains a price list of adjustable jaw type switches for currents not exceeding 600 volts.

"A Million Dollar Check" is the title of a pleasingly written narrative telling the development of the mineral riches of British Columbia and Washington—how undeveloped claims in lonely mountain nooks have, within 10 years, become famous mines and the centers of thriving towns. The narrative is illustrated by numerous views which are chosen with remarkably good taste. The little volume of 72 pages is published by the "Spokane Review," of Spokane, Wash., and copies are being distributed to interested parties by E. M. Carroll, broker, of New York City.

James L. Robertson & Sons of New York City are sending out notices calling attention to the merits of "Eureka" packing. The company states that sales of this article are growing tremendously, and that it has been shipped to remote parts of the earth. The company also manufactures engine indicators, which it guarantees to be handsome, efficient and durable. The improved "Victor" reducing wheel is made to attach to any indicator and to take in any stroke or speed by merely changing a bushing. The Lippincott planimeter is another device, which, the company states, is worth the attention of those owning indicators. The company sends illustrated price lists describing the above devices on application.

The field for gas and gasoline engines in mining work is continually widening, but mining men demand engines simple, strong, easily controlled and durable. The Wittwe Iron Works of Kansas City, Mo., states that the gas and gasoline engines it manufactures have been earning their reputation for 10 years, and have kept pace with all improvements known to the trade. In a 32-page illustrated catalogue the company calls attention to its engines, which it states are of the 4 cycle type. The gasoline or other liquid fuel is pumped by the engine as needed, doing away with all danger of explosion and with all carburetters, etc. The engines shown in the cuts are from 4 to 40-H. P. The simple construction of the fuel valves and small working parts are shown and the various points of merit about the engines are fully described.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communication with the best manufacturers of the same.

We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind and forward them catalogues and discounts of manufacturers in each line.

All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

Oil Production.—According to the Oil City "Derrick" in the fields producing Pennsylvania and Lima oils, 1,284 wells were completed in September, including 209 dry holes and gassers, and the new production was 17,694 bbls. Compared with August, there is an increase of 85 wells completed, 7 dry holes and a decline of 377 bbls. new production. On September 30th, the Eastern and Western oil fields contained 616 rigs and 1,068 drilling wells, which was a gain of 83 rigs and 17 drilling wells over the figures for August 31st.

ALASKA.

Douglas Island.

Alaska Treadwell.—The August report shows that 540 stamps crushed 57,513 tons ore in 29½ days, valued at $71,927, and saved 1,180 tons sulphurets, valued at $34,105. Working expenses were $39,500. The ore averaged $2 per ton. Gross yield for the month was $115,019.

ARIZONA.

Gila County.

(From Our Special Correspondent.)

Old Dominion Copper Company.—The company has been clearing up the bottom of its 850 ft. shaft, and will sink another 100 ft. The shaft is said to be the deepest on any copper mine in the Territory. The new hoist is running both cages efficiently.

Graham County.

(From Our Special Correspondent.)

Hughes & Shannon.—The sale of these mines near Clifton to the Thompson Development Company of Butte and New York is reported completed.

Yavapai County.

(From Our Special Correspondent.)

In Pichacho District the development work on the 9 claims belonging to Dalton, Evans & Glanville shows good prospects. T. E. Farish has reported on the property.

Arizona Eastern & Montana Smelting and Development Company.—Henry B. Clifford of Prescott is no longer resident manager. Last spring he leased on behalf of his company the old Hackberry smelter, about 3 miles from Mayer Station in the Big Bug District, besides 30 claims owned by Phelps, Dodge & Company of New York, and other mineral properties. The smelter was repaired and Clifford started to buy ore. Recently the Territorial papers published articles of incorporation of the Henry B. Clifford Mining Company, the directors being H. B. Clifford, Maude Clifford, his wife, and a man named Davis, and stated that Clifford and Davis had located extensions of the properties for which the former was manager. The company investigated the matter and Clifford was immediately discharged. A new manager, Ervin D. Treadwell, son of George A. Treadwell, has been appointed and a suit in equity will probably be brought against the Henry B. Clifford Company.

Equator.—On this group near Jerome, Senator W. A. Clark is running a tunnel on the Iron King. Joseph L. Giroux is superintendent.

Nolan & Carlisle.—These groups, comprising 24 claims on the Buckhorn, Castle Creek District, have been bonded to French parties for, it is said, $65,000. The first payment of 10% was made September 16th.

CALIFORNIA.

Amador County.

(From Our Special Correspondent.)

Oneida.—At this mine, 2 miles north of Jackson, arrangements are being made to erect a 60-stamp mill. The underground work will be prosecuted in both shafts. The old incline shaft has been retimbered and unwatered to a depth of 285 ft. The main shaft is down 1,900 ft. At the 1,500 ft. level a crosscut run to the west 255 ft. cut the ore body and drifts were run 940 ft. north and 600 ft. south. At the 1,700-ft. a crosscut west 135 ft. encountered the ledge, and drifts were run 200 ft. north and 160 ft. south. At the 1,900-ft. the ledge was encountered in the shaft and a drift 198 ft. north is all in ore, and the south drift of 150 ft. is also in ore. The ore in sight warrants the erection of the mill.

Butte County.

(From Our Special Correspondent.)

Cherokee.—This old mine, 12 miles from Oroville, is said to have been bonded by I. B. Hamilton, of Pittsburg, Pa. Price is said to be $300,000. The property has been tied up in litigation for 14 years. This mine has one of the largest water systems in the State, having 4,000 in. of water under a 900-ft. head.

Calaveras County.

(From Our Special Correspondent.)

Lightner.—The main shaft at this mine, near Angels, is down 450 ft. At the 650-ft. the management intends to crosscut. The 40-stamp mill is kept busy crushing on an average of 208 tons every 24 hours.

Kern County.

(From Our Special Correspondent.)

Randsburg District.—The following is the record of some of the stamp mills in this district: Red Dog Mill, 7,793 tons, $280,000; Black Hawk Mill, 4,080 tons, $173,600; Eureka Mill, $162,000. The Yellow Aster is crushing about 150 tons per day, yielding about $90,000 per month. Several mills in the vicinity are kept busy.

Nevada County.

(From Our Special Correspondent.)

Planet.—This gravel property has been bonded by a company composed of Dr. Cecil Corwin, W. Kesheys, W. F. Corwin, Geo. West, Percy Johnson and H. W. Gendar, who own 50 acres of the mine, and have 400 acres under bond. A large amount of gold was taken from this ground in early days.

Union.—At this drift mine, on Relief Hill, 3½ miles from Bloomfield, comprising 90 acres of land, 2 tunnels are still being driven ahead, 1 of which is now in 2,000 ft. and the other about 1,600 ft. The channel is 225 ft. across, running east and west, and is being worked in breasts 6 to 7 ft. high and 70 ft. broad.

Shasta County.

(From Our Special Correspondent.)

Trinity Consolidated.—At this mine on Dog Creek, 6 miles west of Delta, development work is progressing. The shaft is down over 100 ft. and a drift has begun. The ledge is said to show good ore. Col. W. C. Woodrow holds the bond.

Sierra County.

(From Our Special Correspondent.)

Alaska.—At this mine, ¼ mile northeast from Pike City, the new 20-stamp mill is almost completed.

Blue Gouge.—The grading is completed for the 20-stamp mill and the 8 Huntington mills. The property is on Camp Creek, 9 miles east from Pleasant Valley and is being operated by an Eastern syndicate. E. Bind is superintendent.

Klondyke.—This quartz mine, in the middle of the Yuba River about 4 miles south of Loganville, is being developed by E. Russell. The ledge is large, yielding from $4 to $29 per ton.

Last Chance.—This hydraulic mine, 7 miles north from Sierra City, is being worked under bond in connection with the Magnolia Mine by Ross & Phelps.

Siskiyou County.

(From Our Special Correspondent.)

Commodore.—The milling plant at this mine, at the head of Barkhouse Creek, 13 miles northeast from Scott Bar, has been increased to 10 stamps.

Siskiyou Mining Company.—The new saw mill recently erected by this company at McKinley Creek has started up, and lumber for the mines in this vicinity will be got out.

Sonoma County.

(From Our Special Correspondent.)

Healdsburg Paint Company.—The mill on the property of this company, near the railway depot, is being refitted with new machinery and supplied with many modern improvements and is about to start. The company's mine is already being worked in anticipation of the mill resuming. Strong indications of quicksilver have been noted, and it is possible that the outcroppings will be followed.

Trinity County.

(From Our Special Correspondent.)

Chloride-Bailey.—At this group of mines near Detrick, the mill is running on good ore, plenty of which is in sight. The management intend to run a lower tunnel and move the mill down to Canyon Creek. Thirty men are employed.

Tuolumne County.

(From Our Special Correspondent.)

Arbona.—A 3-ft. vein of rich rock has been encountered in this mine, on the southern limits of Tuttle town. The find was made in the drift from the bottom of the shaft, which is down 400 ft. The ore carries free gold and high grade sulphurets.

COLORADO.

Boulder County.

(From an Occasional Correspondent.)

Ballarat Smuggler Mining and Milling Company.—This company has unwatered its mines near Boulder, and is putting in a new water plant and generally overhauling things. The company expects to put in a new mill especially adapted to telluride ores.

Custer County.

Bassick Gold Mines Company.—The water in the Bassick Mine at Silver Cliff has been pumped out to a depth of 1,200 ft. The work of reopening drifts progresses slowly.

Gilpin County.

(From Our Special Correspondent.)

Mining Deeds and Transfers.—M. G. P. Gill to W. Lennox and E. W. Giddings, Jr., of Colorado Springs, ⅝ interest in Yellow Jacket, Centerville No. 1 and Yellow Aster lodes, and ⅞ interest in Centerville No. 2 lode; J. E. Schorr et al. to the Josephine Mining and Milling Company, the Beatrice Nos. 2, 3, and 4, Missing Link Nos. 1 and 2, Brightside Nos. 1, 2, and 3, Home, Union, Josephine and Aurora lodes; Kansas-Burroughs Consolidated Mining Company to C. Horning, Drogheda and West Monroe Extension claims; D. C. Patterson to A. T. Bellows, ½ interest in Little Johnny claim; E. C. Kelly to C. Malone, Big Willie lode; T. H. Becker to Colorado Bonanza Union Tunnel and Manufacturing Company, Maryland and Second Discovery lodes and mill sites.

Boodle.—Colorado capital is interested, and the operators will put up $10,000 to open the property. A new plant and new building will be built at once. The property is owned by Central City parties.

Coeur d'Alene.—Pittsburg, Pa., parties have purchased this property, owned by Mrs. Cameron, paying $40,000. W. H. Parenteau of Central City is in charge.

Golden Scepter.—The new shaft house at Central City accidentally burned down on September 24th, damage being about $750. Omaha, Neb., parties are interested and will rebuild the shafthouse. V. E. Caine is manager.

Great Mammoth.—A Central City pool is to work this property, and a plant consisting of a 20 H.P. double cylinder hoist and 40 H.P. boiler has been ordered. The shaft is 140 ft. deep.

Great North Downs.—Boston capital is interested and the shatf is to be sunk several hundred feet below the 215 ft. level. The crevice has widened, and also carries increased values. L. H. Stockbridge, Central City, is manager.

Josephine Mining and Milling Company.—This company has filed articles of incorporation, with capital stock of $500,000, to operate in the Union and Independent Districts. The directors are W. A. and J. E. Schorr, J. L. and C. A. Stickel, W. L. Hartman, A. Schoppe and C. J. Strots.

Little Fortune.—A. B. Drake has given a 2 years' lease and bond for $10,000 on this claim to Fremont County parties, who will start developments at once.

Travis Gulch Gold Mining and Milling Company.—Five carloads of machinery have been received at Black Hawk for this company, operating near Rollinsville. Equipment for a 20-stamp mill, 1 50-H.P. engine and a Deane pump. W. W. Olds of Rollinsville is looking after the interests of Texas, Dakota and New York men.

Unexpected.—A Central City pool has taken hold of this property in Lake District, and drifting will be carried on in 160 and 265 ft. levels.

Lake County.

(From Our Special Correspondent.)

A. Y. & Minnie.—Lessees Newton & Douglass shipped over 1,200 tons of lead concentrates in September and 500 tons of crude ore, the crude averaging about 30% lead.

Boston Gold Copper Smelting Company.—The new pyritic plant is receiving ore and its 350-ton furnace is to be blown in about October 8th.

Cady Mining Cmpany.—This concern has sold the south end of its property to Frank Germon, who has leased the Buckeye property, adjoining, and will open the territory through the Buckeye and Four Per Cent shafts. The Cady Company retains the O. K. shaft. This territory will soon be tapped by railroads.

Mahala Mining Company.—Arrangements are completed to ship by rail, and present shipments of 75 tons per day will be about doubled. The ore is coming from the 1,280-ft level.

Midas Mining Company.—At a depth of 480 ft. in its new shaft, this company has cut the outer edge of an iron ore body. The shaft will be sunk 1,500 ft. and development will begin. This concern, headed by S. D. Nicholson, began work here only 3 months ago. The group known as the old Gazelle combination includes the Gazelle, Dillon, Grey Eagle and Pocahontas ground. The strike is believed to be the continuation of the northeasterly shoot caught in the Penrose and is of exceptional richness.

Mike & Starr.—The McAllister lease has resumed work and is shipping to the Buena Vista smelter. A new shaft is being sunk by the lessees, who are seeking for richer ore bodies.

New Monarch Mining Company.—Manager Tim Goodwin is opening up immense ore bodies in the New Monarch and is also prospecting with diamond drill below the present ore body. A rich body of copper sulphides over 20 ft. thick has been cut at 200 ft. in the Winnie shaft, the ore being similar to the rich stuff in the Monarch.

Rock Hill Company.—This concern has resumed work on territory on Rock Hill after an idleness of 3 years. The ground is owned by the Rock Hill Consolidated Mining Comany, and Messrs. Frank Bulkley and Thos. Ovens are at the head of the work being done. The group includes the Nil Desperandum, Cornucopia and other claims east of the Oscar Placer. A few years ago ore was caught at the 650-ft. level. Drifting has been resumed at that level in the Nil Desperandum.

Union Smelter.—This smelter blows in October 5th. It is now in excellent condition. All of the furnaces have been rebuilt and many other improvements made. P. S. Morse will be the superintendent in charge, while it is understood that Manager J. H Weddle, of the Arkansas Valley Smelter, will act as manager.

San Juan County.

Ice Lake Basin.—T. F. Walsh, owner of the Camp Bird Mine and mill at Ouray, is reported to have secured patents on over 30 claims in this district. Some good finds of free gold have been made.

Summit County.

Extension.—A recent strike of a 10-ft. seam of taley ore at this mine near Breckenride is reported to run $25 per ton. About 15 men are at work. The mill has a 60-H. P. engine, 20 stamps and a Wilfley table.

Hazel Gold Mining Company.—This company is exploring with a diamond drill in Spaulding District, near Breckenridge.

Jessie.—This property at Breckenridge is now controlled by the North American Gold Dredging Company. The old tunnel has been retimbered 1,500 ft., and an upraise to the Jessie claim has found some good ore. At the mill 20 of the 40 stamps are dropping.

Teller County—Cripple Creek.

Vindicator Consolidated.—T. J. Campbell, manager, states that for August this mine at Independence had an actual output of 2,612 tons of ore; gross value, $78,818; net smelter returns, $56,236; total mining expenses, $16,686; paid lessees, $13,870; profit for month, $25,679.

(From Our Special Correspondent.)

Acacia Gold Mining Company.—The apex suit between this company and the Free Coinage is pending. The evidence is all in and the decision will be given soon. The company is taking out some very good ore from a winze in the 5th level, the ownership of which will be contained in the decision. The Free Coinage is also getting some very good ore. The properties are in the town of Altman and adjoin the Pharmacist. Dr. Chambers of Cripple Creek is manager for the Acacia and Sam. S. Strong of Colorado Springs for the Free Coinage.

Fluorine.—This producer is reliably reported to again be in ore. It is being worked under lease by Milo Hoskins and Col. Murray. This is the only mine on Copper Mountain that has shipped to amount to anything. During 1898 a considerable amount of ore was taken out by McClurg of Denver.

Kimberly Gold Mining Company.—Considerable rich ore is being shipped. The Milliken lease and also the Mathews and Neff leases are reported looking well. This property is on Beacon Hill.

Papoose Gold Mining Company.—This company has begun to ship again from its Guess claim of Squaw Mountain. The property has been shut down some time on account of litigation with the Squaw Mountain tunnel.

Squaw Mountain Tunnel.—A circular issued recently to the stockholders gives the reasons for selling the property for $20,000. These reasons were principally: the property had been sold under executions and trust deed and there was no money in the treasury to redeem it; considerable litigation was pending, and in order to prevent a total loss to the stockholders it was deemed best to sell for the best price obtainable. From the $20,000 there will be enough to pay off all the debts and leave about $10,000 in the treasury. Out of this a dividend will be paid, probably about $5 per 1,000 shares.

Zenobia.—A strike is reported, but the information can not be verified. The new shaft on the south end of the claim is going down steadily and will soon reach the 400 ft. mark.

IDAHO.

Blaine County.

Crœsus Gold Mining Company.—Sinking has stopped in this mine at Hailey until the new air compressor is installed. The winze below the lower level is down 50 ft. It was sunk in the vein, where the ore widened to 17 ft., and carried some pyrrhotite and other ore that assayed, it is, said, upto 29% of copper and up to 10 oz. of gold per ton. Richard Schople is foreman.

Boise County.

Basic Dredging Company.—The Vulcan Iron Works of Toledo, O., states that it manufactured the elevator bucket dredges that this concern is now using with success on Grimes and Wolf creeks, near Placerville.

Elmore County.

(From Our Special Correspondent.)

Badger Creek.—The papers have had lively accounts of big ore finds. The veins are fissures, in granite and though in the past 6 weeks some wonderfully rich assays have been had, with one exception, the values are in rich spots, in shallow cuts. Present exploration is limited to work on 3 claims by 11 men. Cross cut tunnels are being driven on the Copper Queen and Mispah. On the former the vein cut by a tunnel 127 ft. long is said to be 10 ft. wide, with a strong ore seam 16 in. thick of $80 ore, mostly gold. A good part of the remaining vein filling is low grade. The Mispah vein is expected to be cut any day. Badger Creek flows into Boise River from the north about 40 miles from Boise. The Copper Queen is nearly 3 miles from the mouth of the creek. There is an abundance of timber and water.

Dutch Charley.—Some 6 miles above Twin Springs is a bench on Boise River, owned by C. S. Rothermel. There are about 70 acres of valuable gravel. The mine will be worked next spring.

Idaho Consolidated Mining Company.—In May, 1899, the Big Five placers on Boise River were purchased, ditches built and some washing done before water gave out, but hardly more than sufficient to open the ground for next season. Manager Lindley Vinton is adding to the holdings. The Swan group, 27 miles above Twin Springs, and 12 miles above Big Five, consisting of 380 acres in 4 benches, is a recent acquisition that is being equipped. Two saw mills are supplying lumber and 4 new ditches—mostly flumes—will be ready for service in the spring. Black Warrior, Cliff and H. S. P. are other placers recently purchased, but will not be equipped before 1901. However, in 1900, the company will carry on the second largest gold washings on Boise River.

Upper Boise Hydraulic Company.—Major Fred R. Reed, the manager, states that placer operations will be carried on next season on 3 of the benches. This company owns some of the richest placer ground on Boise River.

Kootenai County.

Keep Cool.—At this claim, Lakeview, on Lake Pend d' Oreille, preparations are being made for winter. The ledge is very wide and is being opened by a tunnel. A pay streak 18 in. to 2 ft. wide, carries some rich gray copper and galena.

Nez Perces County.

Imnaha District.—Many rich strikes of copper ore are reported in this new district along the Snake and Salmon Rivers near Lewiston. On the Delta group, bonded to Eastern parties, 20 men are driving tunnels. A large amount of exploration work is going on in the district.

Myrtle.—This group of copper claims on Snake River, 18 miles above Imnaha, is reported bonded by Dr. Bibby and John O'Neill of Grangeville to Boston parties. The ore is copper and occurs in trap rock. It is reported to carry good values in gold and silver. Twelve men have

been put at work. The claims are 7 miles below Pittsburg landing.

Owyhee County.

The Black Jack Company worked an ore body up to the side line of one of the Florida Mountain group. There is 400 ft. of stoping ground there. The purchase of the Black Jack gives the Trade Dollar about 8,000 ft. on the vein.

Black Jack.—This mine, near Silver City, is now the property of the Trade Dollar Consolidated Mining Company, of which James Hutchinson is superintendent. The mine paid dividends for years, but closed down recently on account of a heavy flow of water.

The Trade Dollar Company can work the property without any outlay for machinery. When the old Trade Dollar and Florida Mountain properties were consolidated, the Black Jack, with 1,500 ft. of the vein, was left between the 2 groups of claims. The consolidated property is being developed by a long tunnel that will pass 300 ft. under the Black Jack's deepest workings.

Shoshone County.

Sunset Peak.—Work on the claims held by W. A. Clark on this mountain, near Wallace, progresses. A large amount of timber has been cut for fuel and a compressor is being installed. On the west side of the peak Montreal parties are doing some work on the Father Lode. The Colwyn is running a drift on its lead to catch the shoot found in the 900 ft. tunnel.

ILLINOIS.

The miners and operators in the Chicago & Alton District adjusted their differences recently. The miners accepted a reduction of 6¾c. from the prices they asked—an increase of 12c. over the scale offered by the operators. The strike had been on since April and affected 1,000 men.

Coal Miners' Troubles.—According to a Springfield dispatch a strike which may affect nearly 3,000 miners is pending in the northern coal fields, where the drivers have made a demand on the operators for $2 a day. The drivers are now paid $1.75 a day. The Pittsburg scale agreed to by the operators provides a wage of $2 a day for drivers, and the strike will be ordered on the ground that this agreement has been violated. At Danville 3,000 miners who have been out 2 weeks have returned to work, the firemen's demands having been conceded by the operators. The contention was for an 8-hour day and $1.75 per day. The new agreement stands until April 1st.

IOWA.

Webster County.

Coal Miners' Strike.—According to a Fort Worth dispatch a serious strike has been begun at the coal mines in this county. Every mine in the district is closed down, about 400 workers being idle. As a result factories are running short of fuel and may have to suspend operations.

MICHIGAN.

Copper.

Atlantic.—This company's output of copper for August was 275 1/3 tons, compared with 283 tons in 1898. The output from January 1st to August 1st, was 1,924½ tons, compared with 2,103 tons last year for the same time.

Resolute.—This old Keweenaw County property was recently sold at public auction by Receiver W. J. McDonald and was bid in by J. F. Carey of Escanaba, for $5,000. Mr. Carey is associated with a party of Houghton County men. The property embraces 1,120 acres of land east of the Delaware. The old Resolute Mine was last worked in 1867, when A. B. Wood was its superintendent. Mr. Wood afterward became superintendent of the Calumet & Hecla, and was with the latter company at the time of the big strike in 1872. A fissure vein crosses the property. The new owners have done considerable work unwatering and timbering the shaft, and otherwise putting the property in shape. Originally the capitalization of the Resolute was 20,000 shares, at $25 par, and was owned and controlled by Philadelphia parties. In 1860 a shaft was started and sunk 200 ft., with numerous drifts.

Iron—Marquette Range.

Volunteer.—The water is about pumped out of this Cascade Range property back of Palmer, and mining is going on at the east shaft. The ore and jasper ore is so mixed that much care has to be taken in sorting the ore. A large amount of repair work is being done underground. The Cleveland-Cliffs Company of Ishpeming now controls the property.

Iron-Menominee Range.

Chapin.—This property at Iron Mountain is shipping about 100,000 tons a month, and its total for the season will be over 750,000 tons.

Hilltop.—Shipments are starting from this property near Crystal Falls. Capt. C. T. Roberts, who is in charge, expects to ship 10,000 tons before navigation closes.

Mansfield.—This mine, at Mansfield, is looking well. The new shaft is down to the 8th level, 600 ft. below surface. The ore is Bessemer.

Paint River.—This mine at Crystal Falls, idle since 1893, is being reopened by Corrigan, McKenney & Company, of Cleveland, O. The fee is owned by A. L. Flewelling and others of Crystal Falls. S. C. Bennett will have charge of the mine.

MINNESOTA.

(From Our Special Correspondent.)

To October 1st the total iron ore shipments of the State were 5,900,000 gross tons, of which the Duluth & Iron Range road shipped 2,900,000 tons, the Duluth, Messabe & Northern 2,300,000, and the Eastern Minnesota 700,000; the Duluth & Iron Range being some 750,000 tons ahead of last year's figures. It looks as though full season's shipments from Minnesota would be about 7,400,000 tons, or about 1,500,000 tons over 1898. If the Michigan ranges do as well the total output of the Lake region for the year will be not less than 17,500,000 tons. Practically, the increase over the preceding year will be from Minnesota.

Freight rates are quiet, and more ships are on the market, as many season contracts at 60c. and thereabouts have expired. Rates are steady at about $1.70, with a declining tendency.

Work has begun on the Great Northern ore dock at the south corner of the Duluth-Superior harbor. The dock will be slightly smaller than was at first planned, and it will take 6,000,000 ft. of timber.

About 8,000 men are busy on the 2 Minnesota ranges mining, and those who are thrown out of employment by the close of open pit mines will find work in underground properties and the lumber woods.

Ten locomotives have been ordered by the Duluth & Iron Range road from Schenectady, N. Y., 6 of them 12-wheelers of 234,000 lbs., and the rest general freight 10-wheelers. The company states that the advance in prices over a year ago is about 25%. Plans are being drawn at the company's shops for a new style steel ore car of 100,000 lbs. capacity; bids will be received shortly.

Iron—Mesabi Range.

(From Our Special Correspondent.)

There is an immense amount of exploring going on in T. 58, R. 20, one explorer having no less than 7 drill crews at work, besides 2 test pitting crews in sections 22, 23, 27, 28 and 29. The Lake Superior Consolidated Mines recently bought for something like $120,000 a 40 acre tract in section 22, and the Minnesota Iron Company has come into possession of another near the east side of the town.

Clark Lands.—These lands, whose option to H. Roberts was recently noted, have been taken under a second option by the American Mining Company and are to be thoroughly explored.

Fayal Iron Company.—Stripping will continue until January, and perhaps later. The company is still shipping heavily and has passed the 700,000 ton mark.

Iron—Vermilion Range.

(From Our Special Correspondent.)

All the camp outfit, etc., of Jones & Laughlins in use on section 25, near Ely, has been shipped to Ishpeming, where the company is conducting explorations. The company may work on the Vermilion again.

Negotiations for the lease of the Roy Claim at Tower to the Oliver Company, in progress for some time, are understood to have been dropped.

Cole & Macdonald are drilling on the N. E. of the S. E. section 30, T. 63, R. 11, being the Macdonald 40 of the famous section 30, with what success is not known, though the indications are magnificent.

Explorations are under way in section 26, east of Ely, by Capt. H. Roberts and others.

Explorations are also under way 6 miles north of the hard ore mines of the Minnesota Company at Soudan; test pits are down for diamond drilling, and it is said the indications are favorable. Explorations are also to start 6 to 8 miles south of Tower, toward the height of land north of the Mesabi Range.

Alworth Mining and Development Company.—This Duluth company has taken a drill into section 32, T. 62, R. 11, 5 miles east of Ely, and is at work on a promising showing.

A large body of magnetic ore in sections 29 and 30, T. 62, R. 10, will be explored soon, probably.

Chandler Iron Company.—This company's mine at Ely is now shipping its last 100,000 tons of the year's probable output, having passed the 700,000 ton mark. It has yet in stock about 90,000 tons. The grounds will be clean for the first time in many years. The mine is hoisting about 1,600 tons a day from the 600 ft. level, and is opening ground to 730 ft., which will be mined for next year's shipments. The mine is in splendid shape and is mining ore at as low a cost as the most approved methods and highest skill can secure, though some new ideas of Capt. Pengilly may increase the product per man still further in a year or two. The wonderful character of the Chandler ore is shown by the fact that out of an annual shipment of about 440,000 tons the Cleveland agents were able to find but one piece of waste rock, a chunk of paint rock, less than an inch cube and running about 40% iron. Men are still very scarce and while 2 shifts are running there are not miners enough to fully man one. But for this the season's output would amount to more than 900,000 tons.

Pittsburg & Lake Angeline Iron Company.—This company, with headquarters at Marquette, Mich., has been exploring on section 25, just east of Ely, but has been unsuccessful and has puled up its drills.

Minnesota Iron Company.—This company has been drilling a long time close to the town of Tower, south of its Soudan mines, and is said to have found a very large body of fine ore.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The market shows a slight advance in fancy grade zinc ore, a small amount of such at Belleville having sold at $43.50 per ton, an advance of 50c. over last week's price. Lead was unchanged and sold throughout the week at $27 per 1,000. The shutdown ordered by the directors of the Producers' Association had the effect of stiffening the market and the sales were larger than expected. During the corresponding week last year top grade zinc ore sold for $33 per ton and lead brought $22.75 per 1,000, the output was less than last week by 566,530 lbs. of zinc, 286,870 lbs. of lead, and the value was less by $57,000. For the corresponding 39 weeks of last year the lead output was greater than this year by 4,693,752 lbs., but the zinc output was less by 63,589,470 lbs., and the value was less by $3,754,417. As compared with the previous week, the sales show an increase of 430,870 lbs. of zinc and 126,370 lbs. of lead and the value is greater by $16,091. Following is the turnin by camps:

	Zinc lbs.	Lead lbs.	Value.
Joplin	1,534,860	420,090	$42.526
Galena-Empire	2,037,980	251,850	42,465
Webb City	342,300	31,020	7,332
Carterville	1,339,480	192,140	30,637
Oronogo	362,390	.....	7,610
South Jackson	310,870	21,850	6,186
Belleville	285,280	8,570	7,218
Stotts City	469,990	44,090	10,590
Central City	214,160	57,120	5,197
Duenweg	361,900	91,560	6,805
Cave Springs	58,980	1,380	1,099
Hells Neck	146,120	50,310	4,353
Lehigh	103,405	.....	2,121
Granby	305,240	21,630	5,430
Aurora	1,125,000	.....	17,393
Wentworth	221,200	.....	3,871
Barry County	119,270	.....	1,908
Dade County	164,810	.....	2,390
Morgan County	91,510	.....	1,830
Total for week	9,694,840	1,191,580	$206,990
Total 39 weeks	392,314,930	36,396,128	$8,621,262

On September 28th, the Missouri & Kansas Zinc Miners' Association ordered an indefinite shut down of all the mills in the Association, thus cutting off at once from 75 to 90% of the production. This action is due to the ore buyers refusing to pay the schedule price whenever they can avoid it. Smelter men claim that the metal brokers manipulate the spelter market and that between the demands of the producers and the prices obtained for spelter, there is nothing in the business. The directors of the producers' association claim that there is a demand for spelter at above quoted figures; that there are no stocks of either metal or ore on hand; and that the smelters can either pay the prices demanded or quit business in this district and allow the ore to be smelted by those who will pay a fair price, and will sell direct to consumers. Small operators who are compelled to have cash for ore on hand can get advances from the banks on easy terms. It is difficult to forecast the outcome. It seems certain the smelting interests will either have to make concessions or there will be a radical change in the methods of marketing the ores of this district.

The demand for mines and mineral lands continues active. Among the big deals is the transfer by the Leonard Mercantile and Realty Company, through Franklin Playter of 790 acres of land in Jasper County to Eastern parties for $300,000. Most of the land is developed and a large portion of it is paying handsome dividends. The same parties also bought the Cock Robin, Chicago Consolidated and Pelican Mines in Chitwood Hollow from Thayer & Chandler of Chicago, paying $100,000 for the group. The Crown Point mines at Duenweg have been sold through Frank Nicholson to Boston parties for $50,000. Ashton, Devonshire and others of Boston have bought the Dorothy Mine and lease of 4 lots on the Kohinoor ground for $16,000. Lickett & Dickey of Central City have sold their mine and sub-lease on the Lone Lady for $12,000. The Pansy Blossom and sub-lease of 2 lots and a fraction on the Dixon ground at Tuckahoe has been sold for $8,000. The Osceola Mine on the Hannum & McElroy ground at Carterville has been sold to New York parties for $25,000. The Della S. Mine and lease on the Garrison land at Webb City has been sold by J. D. Hurd for

$25,000. Huffman Bros. of Webb City have sold their mine and lease of 2 lots on the Boston Get There for $4,000. C. F. Grannis of Kansas City has purchased 4 lots on the Illinois Lead & Zinc Company's land at Galena for $25,000. The lots have produced ore which sold for $12,500 since last March, and the new owner will erect a mill.

W. A. Walcott, who owned a ⅝-interest in 9 lots on the Mohaska ground, south of Joplin, purchased the other ⅝ the other day for $3,000, and then sold a ½-interest to Boston parties for $7,000. The purchasers are to erect a 100-ton mill as part of the consideration, and Mr. Walcott is to be retained as superintendent, at a salary of $1,500 per year. The Leonard tract of 120 acres in Chitwood Hollow, west of Joplin, is reported sold at $300,000. The Big Hickory Mine and sub-lease of 5 lots on the Bunco lease, near the State line, has been sold to Warren Patton for $2,550. The old Atlas, "B. C. B." and War Eagle Mines, on the Baldredge & Hubbard lease at North Heights, have been sold to W. F. Thomas of Richmond, Ind., for $6,000. A new plant will be erected on the lots at once. The Spot Cash and the Lucky Eight Mines, on the Red Lion lease at Belleville, have been sold to Librock & Co., of Illinois. Starr, Morgan & Myers have sold their 20-acre lease known as the "A. No. 1," on the Roaring Springs tract, for $80,000. Nifong Hill has sold a ⅛-interest in his new prospect east of Ruby, for $500. W. L. Rush and Herbert Mills have sold the Meredith Mine, in Tanyard Hollow, to Chicago parties, the consideration being, it is said, $18,000. The deal for the Laura S., on the Get There at Carterville, has at last been closed up, and the property has been transferred to George C. Campbell of St. Louis by Col. T. J. Steers, the late owner.

MONTANA.

Beaverhead County.

Vipon Copper Company.—This company has a group of 4 claims on Upper Wise River, about 3 miles west of the Hecla Mine. The Cordwood claim has shipped 5 cars of ore to the Butte & Boston Smelter, and the last car is reported to have returned 130.7 oz. silver and 3.8% copper. The work on the property consists of a 150-ft. tunnel, with some crosscuts that reach a point 80 ft. below the surface. The shipping point is at Divide, 14 miles distant, upon the Oregon Short Line. A. G. McIntyre, James Sloane and R. L. Clinton are the principal owners.

Jefferson County.

Gold Mountain Mining Company.—This company has been unable to make the Ruby Mine pay and the property has been ordered sold for debt at sheriff's sale. The shaft is about 430 ft. deep. One rich shoot 75 ft. long struck at the surface and extending down 300 ft., paid well, but further work found little of much value.

Madison County.

Clipper Mill.—This plant, belonging to Elling & Morris, is just above Pony. It is equipped with a crusher, 20 stamps, 4 Frue vanners and a Wilfley table. Water power is taken from Cataract Creek.

Garnet Gold Mining Company.—This company's property and plant are about 2 miles from Pony. The milling plant contains 20 stamps, 2 4-ft. and 4 6-ft. corrugated Frue vanners. The building and machinery are almost new. The mine is on the top of a bluff and the ore is conveyed to the mill by a tramway and wire cable. Col. Wood is superintendent and general manager.

Montana Gold Mining and Milling Company.—This company recently leased to Matt. W. Alderson the Illinois, Sally Ann and Kennebec claims at the head of Wisconsin Gulch near Sheridan, on which considerable work has been done. A 10-stamp mill, equipped with a Gates crusher, Challenge feeders, and 3 new Frue vanners, is on the property. The ore in the Kennebec is siliceous, but that in the other 2 claims is talcy. It is said to average $16 per ton. Mr. Alderson will add a cyanide plant to the mill.

Silver Bow County.

Anaconda Copper Company.—The Anaconda group, says the Anaconda "Record," consists of 3 mines, connected underground, the St. Lawrence, the Anaconda and the Never Sweat, with John O'Neill as mining superintendent. Each mine has its separate hoist, and the St. Lawrence a separate dump, but the Anaconda and the Never Sweat use the same dump in common, although the ores are kept separate. The St. Lawrence does the pumping for the three, the Anaconda furnishes the electricity and does most of the machine work, while the Never Sweat supplies the entire group with compressed air. The ore from the Anaconda Mine also is brought from that mine in 5-ton cars hauled by a compressed air locomotive. The track of the Butte, Anaconda & Pacific Railroad runs under the chutes of the dump, whence the cars are loaded for the Anaconda smelters. An average of 50 cars a day is loaded, representing an agregate of about 1,400 tons of ore. Of this the Never Sweat and Anaconda mines produce each approximately one-half.

The present working force of the Never Sweat consists of 450 men, with J. P. Kennedy as timekeeper. The working force of the Anaconda is 600 men. The Never Sweat has a daily consumption of 16,000 ft. of mine timber. The power plant is equipped with 7 Berry boilers of 250 H. P. each. Six of these boilers are constantly in use and the consumption of coal is 2,000 tons per month. The air compressing plant has now 2 large Ingersoll-Sergeant compressors, each, it is claimed, capable of generating more than 1,500 H. P., and another will be added.

The St. Lawrence shaft is equipped with a 30 by 72 in. direct-acting hoist, similar to that at the Anaconda, and 5 Berry tubular boilers. The steel gallows frame is 80 ft. high, with 10 ft. sheaves. Hoisting is done in 9-ton skips, hung under double-decked cages; the skips dump automatically. The pumping engines are below ground, and are of the Corliss type. The first was built by Fraser & Chalmers in 1897, but has been remodeled to suit the Butte water. It works by steam and lifts the water 1,000 ft.

In 1898 the company installed 3 large cross-compound Corliss pumps, built by the Dickson Manufacturing Company of Scranton, Pa., from designs made in Butte. These pumps are worked by compressed air. The ends and valves are of bronze. The column pipes are of steel, lined with lead and wood. Every 200 ft. there is a brass expansion joint, so that any length of pipe can be quickly repaired or replaced.

On the 1,000-ft. level a rope haulage brings the ore from the stopes to the station bin. Sinking is done by an Allis 16 by 30 direct-acting hoist capable of reaching a depth of 1,000 ft. At present the mine is hoisting nearly 900 tons of ore each day, the ore being taken from all parts of the workings from the 200-ft. down to the 1,500, which is the lowest. There are from 650 to 700 men employed under the immediate superintendency of John O'Neil.

The timbers consumed aggregate monthly from 450,000 to 475,000 ft. The blacksmith shop is equipped with a 1,100-lb. steam hammer. A new rope house has been built and equipped with the latest appliances for the repairing of cables.

At the lower works of the smelter at Anaconda a new matte furnace, claimed to be the largest in the world, has been put in. It is 52 ft. 6 in. long over all, 14 ft. wide interior, 42 ft. 8 in. long interior. Eighteen cars can be put in in a single charge and 150 tons of ore per day can be smelted. Labor saving machinery is being installed and also machinery to save much that has heretofore been wasted. Already a saving of 4½/10 of the losses has been made, and the company expects to double this. The red brick works have closed for the season, letting about 50 men out of employment. The output was 2,000,000 brick. The fire and pressed brick work goes on steadily.

NEW YORK.

Slate.

Hatch Hill Slate Company.—Incorporation papers were filed at Albany on October 2d. Capital, $100,000. Directors are Robert A. Hall of Whitehall, Walter R. Willis and Charles T. Seaverins, Springfield, Mass. The company's headquarters are at Whitehall.

PENNSYLVANIA.

Anthracite Coal.

Natalie.—This colliery, near Mt. Carmel, which has been idle for three years, has resumed operations under the control of the Shamokin Coal Company, giving work for 500 men and boys.

Pennsylvania Coal Company.—The company has completed a new 2,000-ton breaker at Williamstown.

Philadelphia & Reading Coal and Iron Company.—It is stated that the Reading Railroad will have built 30 heavy draught Mogul locomotives for its Western trade. The 25-ton box cars will be supplanted as soon as possible by 40-ton gondolas, and the company many ask for bids for 2,00 new coal cars.

Stevens.—The strike at this West Pittston colliery, on for 2 months, was settled by the men going back at the company's terms, an advance of 5c. per car. They had demanded an advance for mining from 90 cts. a car to $1.20, and now will take 95 cts. Twenty of the strikers are awaiting trial for participating in a riot.

Von Storch.—The Delaware & Hudson Company has put in a large pump with a capacity of 3,200 gal. at this colliery, near Scranton, to throw all the water into the Leggett's Creek Mine. The pump was made by the Jeanesville Manufacturing Company of Jeanesville, Pa. The abandoned workings are being filled with culm through two 8-in. bore holes.

Bituminous Coal.

Lehigh Coal & Navigation Company.—This company is to erect a very large breaker at No. 6 shaft, Tamaqua, to handle the coal heretofore shipped to No. 5 breaker. The new structure will have a capacity of 1,500 tons and give employment to 800 men. As soon as the new breaker is completed No. 10 colliery will be rebuilt and equipped with new machinery.

Lehigh & Wilkes Barre Coal Company.—This company has posted notices at all its collieries ordering 9 hours' work a day until further notice. For the last year the collieries have been working only 6 hours a day. During the summer of 1898 many of the collieries worked but 5 or 6 days in the month.

St. Clair Coal Company.—Work is being pushed on the railroad from the shaft to the company's breaker near St. Clair.

Susquehanna Coal Company.—A committee representing the 4,000 striking miners at Nanticoke and other points in the Wyoming Valley waited on the officials recently, but the officials refused to discuss the topping question, the main cause of the strike. The strike has lasted nearly 3 months.

Col. J. L. Spangler of Bellefonte, ex-Governor Hastings, J. A. McClain and C. F. Frazer, recently purchased 77 acres of fine coal land in Elder township, Cambria County. They paid over $100 an acre for the tract.

Sherman Shirley of Bolivar has bought 650 acres of land near Lacolle Station for a New York syndicate. The price was $60,000. Development work will begin at once.

Slate.

(From Our Special Correspondent.)

American Coke Company.—This company, a branch of the American Steel and Wire Company, through James R. Barnes, assisted by I. W. Semans, of Uniontown, has bought from William S. Moser, 3,000 acres of coal lands in southern Fayette County, for which $466,682 was paid to farmers and others. The deal brings the amount of money invested in the coal lands south of Uniontown up to $4,000,000, and farmers there are jubilant. The American Coke Company already owns and works full time 400 beehive ovens at Baggaley, built a couple of years ago by the Puritan Coke Company. The American Company's president is W. H. Rowe and its treasurer D. E. Jackman, both of Pittsburg. It is the intention of the company to erect on the new tract 2 coke plants of 500 ovens each, one on the Keener Farm and the other on the Moser Farm. There is a wonderful interest in the Masontown field, where the purchase was made. In addition to the above tract the Federal Steel Company has 6,000 acres, operated under the name of the Eureka Fuel Company; the National Steel Company, operating as the Continental Coke Company, has in South Union township 2,000 acres, while W. J. Rainey has 1,200 acres on the Beall Farm.

American Bangor.—The annual meeting of the American Bangor Slate Company will be held on Thursday, October 25th. Some radical changes are expected in the personnel of the board of directors, the control of the stock having passed to Philadelphia men interested in the Lehigh & New England Railroad.

Chrome Slate Company.—This slate manufacturing concern has been chartered under New Jersey laws to operate the Northampton Quarry at North Bangor. Capitalists interested in the Lehigh & New England Railroad are backing the enterprise.

Royal Slate Company.—This Wind Gap property is in the hands of the sheriff through an execution for $4,105, issued to Henry M. McKeen, trustee.

SOUTH DAKOTA.

Custer County.

(From Our Special Correspondent.)

Clover Leaf Mining Company.—This company, which has bonded the May Mine, on Lightning Creek, has a drift to tap a vein at a depth of about 35 ft. This is the rich strike that was made by the Carr Brothers last spring. The Clover Leaf Company is also working the Uncle Sam Mine, on Elk Creek, in Pennington County.

Vigilante.—This mine is reported to have found copper ore. A. H. Spencer and C. A. Gascon, of New York City, are president and secretary of the company.

Lawrence County.

(From Our Special Correspondent.)

Bingham Mining Company.—This company has a group of claims near the Hidden Treasure, developed by a 100-ft. shaft and a tunnel which has crosscut a ledge of free milling ore.

Blacktail Gulch.—R. M. Maloney is putting in 2 more solution tanks in his cyanide plant at the Deadbroke Mine. B. C. Cook has nearly completed a similar cyanide plant for the old Hildebrand stamp mill. The Omega Mine will furnish the ore. The Esmeralda Mine and mill have been leased to David Nelson. An open cut is being made in order to mine the ore. The Huntington mill is running. The excavation for the 10 additional stamps for the Baltimore & Deadwood Company's mill at the mouth of the gulch is nearly completed. The plant, with 20 stamps, will start up about January 1st. The cyanide plant that Seth Bullock and associates are putting in at Central City is nearly ready to start on ore from the Gunnison Mine, at Portland. The Boston & South Dakota Mining Com-

pany has bonded the old Minerva Mine and mill, south of the Deadbroke, and purchased the old stamp mill at the Ironsides Mine, in Carbonate Camp, which will be added to the Minerva mill, making 40 stamps in all. There is said to be a large amount of free milling ore left in the mine.

Detroit and Deadwood.—The metal discovered in this company's tunnel on City Creek, in Deadwood, has been determined as nickel, a rarity in the Black Hills. The company is arranging to put in a steam plant for air drills and better ventilation. It is estimated that the tunnel will have to be run 300 ft. farther to reach the main copper ledge.

Galena Mining Company.—This company employs about 45 men. Work goes on in the Hoodoo from a station at the 300-ft. level and in the Alert, upon which a shaft is being put down. H. H. Armstead, of New York, is general superintendent. He is visiting the Yellow Jacket District, in Idaho.

Golden Reward.—This company has struck quartzite in the Delaware shaft in Ruby Basin, at 590 ft. The property was purchased by the Deadwood & Delaware Company, through Dr. Franklin R. Carpenter, who believed that the Bald Mountain ore bodies would be found running south through the Ruby Basin District. Drifting has begun east and west.

Hidden Fortune.—On this claim in North Lead District, Otto Grantz of Deadwood 3 weeks ago struck rich ore. The vein has been stripped about 60 ft. It is a quartzite and is thought by some to be a slide from the true vertical which may be a few hundred feet farther west. Remarkable assays have been given by a Lead assayer. Mr. Grantz is about 65 years old and he has been working on this and 3 other claims for 18 years. He had a placer claim in Deadwood 20 years ago. The richest ore is sacked and taken to Mr. Grantz's house in Deadwood. Mr. Grantz will probably erect a 10-stamp mill with a cyanide plant at the mouth of Poorman Gulch, near the mine, and treat his own ore. The Grantz ground joins the Homestake possessions on the north. This company has offered $25,000 for the 4 claims several times, but Mr. Grantz's price was $40,000.

There is a variety of ores in the vein comprising sylvanite, ore free gold, oxides and horn silver.

Ironsides.—John Harnan, general manager of the Portland Mine, Cripple Creek, Colo.; Thomas F. Burns, of the same company; Spencer Penrose, of Tutt & Penrose, of the Colorado-Philadelphia reduction plant, at Colorado City; F. A. Waters, of the Gold Sovereign Mining Company, and C. E. Stubbs, who have been in Deadwood investigating the phonolite belt west of Deadwood, have bonded the Ironsides mine, in Carbonate Camp, owned by Frank Bryant, and plans are being made for extensive development. Mr. Stubbs is in charge.

Pennington County.

(From Our Special Correspondent.)

Burlington Railway Company.—The company has begun work along its proposed road from Hill City to Keystone, a distance of 12 miles. The road will be ready by February 1st.

Maloney-Blue Lead-Copper Company.—This company has been organized by R. M. Maloney, of Deadwood, and Wallace Kirk, of Chicago. The property comprises about 250 acres on Blue Lead Mountain, the principal working being on the Grey Eagle, where the former owners mined copper ore as far back as 1877. A long tunnel, 1,500 ft. long, will be run.

Rapid City Railroad.—The material has begun to arrive at Rapid City, and at Mystic, and the grading outfits will soon be at work. The road will pass through the Pactola District.

Sunbeam.—This claim, owned by Hawk Wright, of Hill City, is showing some rich free milling ore at a depth of 65 ft. The mine is in Friday Gulch, north of Hill City.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week of September 30th the different smelteries sent forward 23 cars, or 911,274 lbs., lead-silver bullion; 6 cars, or 320,213 lbs., copper bullion. From the different camps were shipped 62 cars, or 2,388,915 lbs., ore, beyond the State for treatment. The bullion and ore shipments in September were 81 cars, or 3,269,422 lbs., lead-silver bullion; 19 cars, or 1,120,745 lbs., copper bullion; 1 car, or 29,900 lbs., silver sulphides (Russell process product from Marsac Mill, Park City); total 191 cars, or 7,953,728 lbs., ore.

Cyaniding Products.—Manager George Moore, of the Salt Lake City branch of the Consolidated Kansas City Smelting and Refining Company, says that September made a new record in the receipts of consignments of products from cyaniding mills, though larger consignments were received when the De La Mar Mercur plant marketed its product in Salt Lake City. Other than this, September's production was 6,050 lbs. of cyanides, of an approximate value of $115,000.

Increasing Ore Production.—Park City is an aspirant for first honors. Daly-West and Ontario are quietly but steadily forwarding a larger tonnage; the new Anchor Mill will soon furnish more shipping products than customary, and Silver King will handsomely augment its yield of concentrates. Tintic offers no occasion for special comment; it fully holds its own. The output of Utah Consolidated-Highland Boy more than makes good the temporary tieing up of production from other Bingham mines compared with 1898. Outside camps are averaging better than a year ago, especially Alta. However, the grand marked improvement is in the Park City territory, where more surprises may be looked for.

New Copper Smelters.—Local papers have had numerous announcements of the building of different copper smelters. The Boston Consolidated's proposed plant is a newspaper fable, pure and simple. The Bingham Copper and Gold will very likely erect a plant in near future. No other new plants are thought of in the vicinity of Salt Lake. Near Vernal, Uintah County, the Dyer is installing a 35-ton water jacket and at St. George, Washington County, another small plant is being erected, which completes the list.

Salt Lake Copper Company.—On September 27th a sheriff's deed was filed for record for the plant of the defunct Salt Lake City Copper Manufacturing Company; consideration, $50,000. Purchasers at sheriff's sale were D. C. Green, Charles G. Singer and George A. Smith, trustees, who assigned to Samuel W. Peck, who again assigned to J. Parke Channing for Lewisohn Brothers. The new owners work the property, including the Copper Mountain Mine, Box Elder County, under the caption of the Salt Lake Copper Company. Copper Mountain is showing well, but a lack of silicious ores, however, has almost determined Lewisohn Brothers to put the plant at North Salt Lake in commission, and a test run probably will soon be made.

Utah Consolidated.—An inquirer asks if Mr. Franklin Farrell is a large owner in Utah Consolidated. Mr. Farrell's Utah Consolidated is in the Tintic District, while the big Utah Consolidated is at Bingham. There is also a Utah of Fish Springs which is quite a shipper. In Boston, Utah Consolidated of Bingham is commonly spoken of as "Utah," while in Utah it is generally known as the "Highland Boy."

Juab County.

(From Our Special Correspondent.)

Bullion-Beck.—Some fine copper stained rock high in silver is being hoisted. It is reported that September's development largely added to the reserves.

Centennial-Eureka.—Manager C. E. Allen came out the middle of the week from Salt Lake, but had nothing to say of future operations. Since the transfer to the Bostonians was consummated production is increased.

Grand Central.—More active mining is promised. The test run on low grade at the Sioux Mill is said to be entirely satisfactory, and it is possible that the mill will be kept in commission on this rock.

Grand Central-Mammoth.—It is stated that Prof. W. S. Keyes will be the expert in chief in the pending suit instituted by the Grand Central for trespass. He will be assisted by Obed A. Palmer, the engineer of the Ontario. Messrs. A. F. Holden and James W. Neill, it is said, will be experts for the Grand Central. Opinion is growing that the main issue, to test the extra-lateral rights claimed by the Mammoth, will never be tried.

Martha Washington.—On September 26th the shaft house was burned to the ground; loss, $5,500. It will be immediately rebuilt.

Salt Lake County.

(From Our Special Correspondent.)

Argentine-Morning Star.—W. C. B. Allen's bond on these adjoining tracts, southwest of Utah Consolidated ground, is transferred to A. E. Reynolds of Denver. Eugene L. Gireaux and Daniel George reported on the property and arranged details. The reported figures vary widely.

Dalton & Lark.—The Whittemore option is extended to October 15th. Manager P. J. Farnsworth states that the latest uncoverings are very satisfactory.

Fortune-Keystone.—McCornick & Company, bankers, have a mortgage for $30,000. Manager Elmer Hill proposes to erect a concentrating mill with the funds thus obtained.

Last Chance.—After being idle all the season the mill went into commission in September. Mr. M. R. Hunt has charge and gives most of his time to Bingham. In addition to 40 tons treated daily in the mill, he says some good crude smelting products will soon be forwarded.

Summit County.

(From Our Special Correspondent.)

Alliance.—Colonel E. A. Wall states that it is not true that the Alliance is owned by the Silver King, though the recent transfer secured the Alliance water for that property.

Anchor.—Excellent progress is made towards completion of the new mill located immediately at the mouth of the tunnel. The mill should be in commission by December.

Daly-West.—Mine Superintendent John McSorley says that the impression that the ore zone cut in September on 1,400 ft. level is all milling low grade is wide of the truth. For the greater part of October the mill may put through 150 tons daily.

Ontario.—Under ground the force has been gradually increased all the season, and the belief that physical conditions are better than for the past 4 years is prevalent. Mr. Murdock, who has local charge, appears to be well content at the outlook.

Union Pacific Ontario Siding.—A gang of men started grading September 25th for the siding from the station to the Ontario Mill, just below Ontario tunnel. This will do away with all heavy teaming for Ontario, Daly and Daly-West mines. Mr. John J. Daly was the prime mover in this scheme.

Tooele County.

(From Our Special Correspondent.)

La Cigale.—Manager H. S. MacKay states that a new roaster is soon to be installed. A shipment of cyanides was made the past week.

Mercur.—Leaching capacity of Manning mill is being enlarged to handle 600 tons daily and allow a longer treatment.

Northern Light.—The mill is not to be closed soon, and it is said to show a profit.

Overland.—Last week the mill handled 200 to 225 tons daily, a new record.

WASHINGTON.

Ferry County.

Okanagan Free Gold Mines.—This company announces an interim dividend of ¼c. per share, payable October 15th. This equals 5% on the paid-up capital, and is said to be the result of the first clean-up. The company has 5 claims about 12 miles south of Camp McKenney, B. C., and 16 miles north of Republic. The head office is in Rossland.

J. S. C. Fraser, Rossland, manager of the Bank of Montreal, shows 2 gold bricks, the result of the first clean-up, which weigh 260 oz., and are valued at $4,420, or $17 per oz. This amount was recovered from the plates; 680 tons of ores were heated, and 5 tons of concentrates obtained, valued at $150 per ton. Percentage of gold to the ton, including concentrates, 45 oz. nearly. This information is confirmed by the secretary-treasurer of the company, S. Thornton Langley.

(From Our Special Correspondent.)

Jim Blaine.—The Jim Blaine Gold Mining Company is drifting from the Republic No. 3 level into Jim Blaine ground.

Lone Pine-Surprise.—An important strike is reported in the Surprise south drift, where the quartz in the vein measures 4½ ft. wide. A sample was taken from the breast, which assayed $465 per ton, of which 89 oz. was in silver and the balance gold. Another assay showed silver 88 oz. and 20.68 oz. gold per ton.

Mineral Hill.—This claim, south of the Hit or Miss, is developed by a shaft on a vein. There is from 1 to 3 ft. of quartz in the shaft, which the man in charge says will run from $6 to $14 per ton. A hole is started on a vein of blue quartz 400 ft. south, which assays $2 per ton.

Mountain Lion.—The upraise from the tunnel to the working shaft progresses finely. The winze is down 60 ft. The grading for the foundation of the mill is completed, and work on the building will begin immediately. The lumber is nearly all on the ground.

Princess Maud.—A compressor plant is to be provided and the winze from the tunnel will be sunk to the 100 ft. The high grade ore will be shipped to the smelters. There are 5 tons sacked and ready for shipment.

Republic.—Some extremely rich ore has been found in the winze below the No. 3 level. Assays have run as high as $2,300 per ton. It is stated that only a small pocket of this stuff has been found.

Okanogan County.

(From Our Special Correspondent.)

Buckeye Gold Mining Company.—This concern is running a 500 ft. tunnel on its vein near Loomis.

King Solomon.—This claim has a 130 ft. incline shaft on 8 ft. vein carrying as high as 800 oz. silver. Will drift each way from 100 ft. level.

Pasco Gold and Copper Mining Company.—This Loomis company is running a 500 ft. tunnel on the vein, which averages about 6 ft. ore; values are gold with some copper.

Roanoke.—This claim has a 500 ft. tunnel and considerable good ore on dump.

Wehe Mining and Milling Company.—A steam hoist is on its way to Loomis and will be installed on arrival.

WEST VIRGINIA.

New River Coal and Coke Company.—This concern is being organized, and proposes to issue $5,000,000 in 6% 20-year bonds and $5,000,000

in stock, of which $2,500,000 will be preferred, bearing 7% cumulative dividends. The companies which may be included are: Rush Run Coal and Coke Company, of Rush Run; Red Ash Coal and Coke Company, of Rush Run; Brooklyn Coal Company, of Sewell; Cunard Coal Company, of Sewell; Caperton Coal and Coke Company, of Caperton; Brown Coal Company, Nuttallburg; Harvey Coal and Coke Company, of Bissell; Star Coal Company, of Red Star; Collins Colliery Company, of Collinsville; Sun Coal Company, of Sun; Dunn Loup Coal and Coke Company, of Dunn Loup; the Turkey Knob Coal Company, of Macdonald; Macdonald Colliery Company, of Macdonald; Sugar Creek Coal Company, of Macdonald; Fayette Coal and Coke Company, of Fayette; New Lynn Coal and Coke Company, of Fayette; Lansing Coal and Coke Company, of Fayette; New River Mining Company, of Elmo; Deitz Masterson Coal and Coke Company, of Hawk's Nest; Ballinger Coal and Coke Company, Nos. 1 and 2, of Nuttallburg; Boone Coal and Coke Company, of Nuttallburg; Smokeless Coal Company, of Winona; Rothwell Coal and Coke Company, of Winona; Blume Coal and Coke Company, of Winona; Royal Coal and Coke Company, of Prince; Thurmond Coal Company, of Concho; Greenwood Coal and Coke Company, of Quinnimont; Laurel Creek Coal and Coke Company, of Quinnimont; Robbins Coal and Coke Company, of Quinnimont; Quinnimont Coal Company, of Quinnimont; Slater Creek Coal Company, of Coit; Alaska Coal and Coke Company, of Claremont; Beechwood Coal and Coke Company, of Claremont; Beury Coal and Coke Company, of Stone Cliff; Dimmock Coal and Coke Company, of Thurmond; Echo Coal and Coke Company, of Beury; Central Coal Company, of Fire Creek; Fire Creek Coal and Coke Company, of Fire Creek, and New River Coke Company, north and south side, of Caperton.

FOREIGN MINING NEWS.

AUSTRALASIA.

New Zealand.

The official return of the Mines Department gives the exports of gold and silver for July and the 7 months ending July 31st as follows, in crude ounces:

	—Gold.—		—Silver.—	
	1898.	1899.	1898.	1899.
July	17,819	25,838	27,972	30,844
Seven months	153,922	218,969	157,847	200,980

For the 7 months the increase in gold was 65,047 oz., or 42.2%; in silver, 43,133 oz., or 27.3%. From the values given, it appears that the gold exports this year were equal to 199,831 fine ounces, or $4,130,515.

(From Our Special Correspondent.)

Gold Production.—During the 7 months ending July 31st, 218,969 oz. (crude) of gold, with a value of £848,736 ($4,243,680) were exported from the colony, an increase in value of £252,507 ($1,262,535) as compared with the corresponding period of 1898. Silver shows for the same period an increase in value of £5,487 ($27,435). During July the export of gold from Otago and Southland was 7,656 oz.; from the West Coast, 3,918 oz., and from Auckland, 14,764 oz.

CANADA.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Rossland Ore Shipments.—Shipments for the 9 months ending September 30th amount to 120,000 tons. The weekly output continues to average 4,600 tons. After October 1st this will increase to 5,000 tons. Of the 120,000 tons mentioned, the Le Roi shipped 66,000, the War Eagle 43,000, Iron Mask 3,800, Evening Star 1,000, Center Sar 6,100, Columbia & Kootenay, 100.

Ajax.—This Slocan property adjoins the Last Chance. The company has a capital of 500,000 in $1 shares. E. E. Meredith of London, Ont., is president; Alfred Robinson is secretary, and Mr. Wright is manager. The company also owns the Palmetto, which adjoins the Queen Bess.

California.—Four men are at work at this claim near Rossland, shipping and making preparations for new buildings and machinery.

Lost Lead.—Martin Brothers of Rossland, Luke Walford of Spokane, and Alexander Rogers of Grand Forks, are to develop this claim on Wilson Creek. It shows 5 or 6 ft. of argentiferous lead ore, half of which is silver, and the outcrop can be traced for a distance of 200 ft. on the surface. James M. Martin of Rossland is the principal owner.

Noble Five.—This Slocan company has decided to reorganize under the laws of British Columbia.

Royal Consolidated.—About 25 men are reported at work at this Slocan mine, some on surface and others on underground contract work.

Whitewater.—The total quantity of ore milled from the mine of this Slocan company for August was 3,850 tons. The profits amounted to $3,750. Total smelter returns, $8,250. The differences between the owners and miners at this mine have not yet been settled.

Nova Scotia—Cape Breton.

Dominion Coal Company.—The shipments reported for September were 196,000 tons coal, 24,000 tons less than in August. For the 7 months of the fiscal year from March 1st to September 30th the shipments were 1,051,500 tons; an increase of 193,215 tons, or 23.1%, over last year.

Ontario—Rainy River District.

(From Our Special Correspondent.)

Work has resumed on A L 282, Sawbill District, and astonishing results are reported in the way of free gold.

Hammond Reef Gold Mining Company.—The water power plant and buildings are reported ready for the wheel and generators, which are on the way from the nearest point of the Canadian Pacific Railroad. Poles are set to the mill, which is approaching completion. Tramway and tramway tower to the crusher house are completed. An acre of mineral has been stripped close to the quarry from which all rock milled last year was taken and some 500 tons of rock are mined. Two development tunnels are being run. Probably the whole plant will be in running order in October.

Sirdar.—This new property, in the Manitou, is being developed and will be sold. Its surveyor's location is H P 259-8, and there is said to be an abundance of rich rock. The Sawyer Gold Mining Company of Montreal will have charge.

COAL TRADE REVIEW.

New York. Oct. 6.

Anthracite.

The hard coal situation just now is calculated to make sales agents take a very rosy view of things. The September production undoubtedly went over the estimated output, but no one hears of coal accumulating at tidewater or anywhere else. In fact, demand in September was undoubtedly far in excess of what was expected, and cool weather is stimulating retail buying at all inland points.

The collieries are working more days a week and the danger of labor troubles is over. Several minor strikes have ended by the men returning to work without any very material gain in the rate of wages.

In the West, shipments by water continue to feel the high freight rates, while what coal comes in meets a healthy demand. As a result it is reported that at Chicago receipts in September were 100,000 tons less than last year, while to equal last year's lake tonnage over 700,000 tons more must come before navigation closes. At the head of the lakes receipts are reported as better than they have been. Coal in lake territory is 25c. a ton higher, making the Chicago price for stove and nut $5.75.

In the East the Reading has announced a 25c. advance at Philadelphia and other points from October 1st, and several companies may follow suit. It is quite possible in view of the unexpectedly large demand for coal that this advance will be realized in November. At Boston the market is firm and retail prices have been advanced 50c. At Boston and New York householders are beginning to lay in coal and retailers' stocks are generally small.

We quote for free burning anthracite f. o. b. New York: stove and nut, $4@$4.25; egg, $3.75@$4; broken, $3.40@$3.65.

Notes of the Week.

The Lehigh Valley Coal Company makes the following statement for August, and the 9 months of the fiscal year from December 1st to August 31st:

	August	Nine Months
Earnings	$1,529,533	$12,715,544
Expenses	1,573,333	13,232,696
Deficit	$43,800	$517,152

For the 9 months the gross earnings increased $2,094,626 and the expenses $1,784,880; leaving a decrease of $309,746 in the deficit.

The Philadelphia & Reading Coal and Iron Company makes the following report for August and the 2 months of the fiscal year from July 1st to August 31st:

	August	Two Months
Earnings	$2,805,054	$5,105,122
Expenses	2,616,165	4,741,463
Net earnings	$188,889	$363,659

For the two months this shows the large increase of $2,089,341 in gross earnings. There was an increase of $1,926,067 in expenses, leaving a gain of $163,274 in the net earnings.

Bituminous.

Consumers and dealers at seaboard points continue to find difficulty in getting what soft coal they want. The large mining concerns often try to help each other out, but those that want the coal continue to get excuses and promises instead. Car supply at the collieries is very short. The great demand for cars from the Central West continues and shows little sign of slackening.

Producers and shippers still find points along Long Island Sound and beyond Cape Cod eager for coal and are sending the great bulk of their shipments in that direction. New York Harbor trade shows no especial change. All rail demand is good, but producers are putting off all rail shipments as long as possible to tend to the rush orders from Eastern points.

The labor troubles in the New River District are practically ended. Nearly all the operators paid the 5c. per ton advance asked by the miners. Coal next year is evidently going to be considerably higher than this.

Transportation from mines to tide is fairly good. In the coastwise vessel market, freight rates have weakened. This weakening is due chiefly to the short supply of cars and consequent slow arrival of coal at shipping ports, causing vessels long delays. Anybody with immediate shipping to offer can discount present rates. We quote rates from Philadelphia as follows: Providence, New Bedford and the Sound, 70c.; Boston, Wareham and Portland, 80c.; Portsmouth, 85c.; Bath, 80@85c.; Salem, 80@95c.; Lynn, 95c.; Bangor, $1; Gardiner, $1 and towages; Saco, $1.10 and towages; Dover, $1.25 and towages. Prices for soft coal may be quoted as $1.70 for best grades f. o. b. Philadelphia and Chesapeake Bay ports, but transient orders command at least 15c. more.

Birmingham, Ala. Oct. 2.

(From Our Special Correspondent.)

There is much work going on in the mines and the output is very large in this State. Every preparation is being made to meet the extra demand that will come when cold weather sets in and all mines will be pushed to their fullest capacities. The Birmingham Southern Railway, which now reaches all the mines and furnaces of the Tennessee Coal, Iron and Railroad Company, is now building additional tracks to reach new mines at Pratt City and other places on the Pratt seam. All of the larger coal companies in this State are working their mines on full time, and the miners are finding plenty of work. The scarcity of cars with the railroads is hindering the output some. The production for the month of September at the mines at Pratt City amounted to 180,000 tons, which is an increase over previous months. There are no further labor troubles in the coal mining business in the State. Though union miners are not working in the Alabama Consolidated Iron and Coal Company's mines at Brookwood and Mildale, in Tuskaloosa County, there are others at work there, and a good output is being obtained. All other troubles have been settled, and President G. W. Young, of the United Mine Workers' organization, states that the conditions among the miners are very favorable. The Republic Iron and Steel Company is making preparations to increase their output at the Sayreton mines. New houses will be built for new miners and other work will be done about the place. The Sloss Iron and Steel Company are beginning to get coal regularly out of their mines, opened at New Found, near Brookside.

There have been seven fatal accidents in the mines in Alabama during the month of September, three of them in shaft No. 1, at Pratt City, the men killed being convicts. Falling slate caused the death of the majority of the seven.

Prospects for the winter are good. Prices are still stiff, with a tendency to increase within the next fortnight. All new contracts for coal deliverable within 12 months are being accepted at an increase. Old orders are being worked off, very few taken before January last being on the books now.

Pittsburg. Oct. 4.

(From Our Special Correspondent.)

Coal.—The two coal combinations are not yet completed, and no advances in prices have been made this week. A meeting of the stockholders of the Monongahela River Consolidated Coal and Coke Company is to be held on Monday. At this meeting a board of directors is to be chosen and the policy of the new concern is to be outlined. Predictions are made that there will be an advance in prices almost immediately after the perfection of the organization. The Pittsburg Coal Company, the combination of railroad operators, has not yet increased prices, but one is promised before the close of another week. The organization has not yet been completed, but will be in a few days.

Connellsville Coke.—The car supply shortage continues to keep down shipments, but the demand is not diminishing and higher prices will likely rule in a short time. New ovens are still being built and the number of completed ovens in the region now reported is 19,076, of which 18,065 are active and 1,011 are idle. The shipments last week aggregated 9,846 cars, distributed as follows: To Pittsburg and river tipples, 3,192 cars; to points west of Pittsburg, 4,888 cars; to points east of Connellsville, 1,766 cars. This shows an increase of 607 cars as compared with the shipments of the week previous.

Shanghai, China. Aug. 21.

(Special Report from Wheelock & Co.)

Coal.—In Japan coal business has been better. Cardiff has been sold for consumption. The market for Sydney Wollongong has greatly improved. Arrivals of all kinds of coal during the fortnight aggregated 20,439 tons. Quotations are per ton as follows: Welsh Cardiff, 14 taels; Australian Wollongong, cargo ex-godown, 12.50 taels, and other sorts, 5@5.50 taels; Japan, all contracted for; Chinese Kaiping, lump, 7 taels; dust, 4.50 taels, and mixed, 5 taels.

Kerosene Oil.—American showed a very large business. There have been no arrivals. Stocks are 876,910 cases. Russian Batum oil has advanced, and some natives have been making good profits. Arrivals were 419,688 tons, making stocks 601,500 cases. Sumatra Langkat has not commanded much attention. Stocks are 30,000 cases. Quotations per case are as follows: American Devoe's, 1.89 taels; Russian Batum Chops, 1.70@1.72½ taels; and bulk oil loose, 1.40 taels; Sumatra Langkat, 1.50 taels per case.

SLATE TRADE REVIEW.

New York. Oct. 6.

Roofing slate is in good demand, while manufactured stock is quiet at unchanged prices. The movement of roofing slate from Slatington, Pa., for the week ending September 28th amounted to 4,515 squares, an increase of 186 squares as compared with the previous week. The school slate shipments were 656 cases, against 545 cases in the week ended September 21st, and of blackboards, 1,128 crates against 1,105 crates. Walnutport moved in the week of September 28th 88 squares of roofing slate, against 180 squares in the previous week. The total shipments from these two places from January 1st to September 28th amounted to 162,371 squares roofing slate, 13,878 cases of school slates and 17,990 crates of blackboards.

No change is noticeable in export circles. Freight rates from New York are about as follows: To London, Liverpool and Hamburg, 12s. 6d. ($3); Manchester, Bristol, Leith, Glasgow and Bremen, 15s. ($3.60); Copenhagen, 16s. 3d.; Newcastle, Hull, Denmark and Stettin, 17s. 6d. ($4.08); Sydney, 15s. net.

The list of prices per square for No. 1 slate standard brand f. o. b. at quarries in carload lots is given below:

Prices of Roofing Slate.

Size, inches	Monson or Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
	$	$	$	$	$	$	$	$	$
24 x 14	6.10	3.50	3.00	3.35	3.25	5.10	3.00	....	.....
24 x 12	6.60	3.50	3.00	3.35	3.25	5.25	3.00	3.75	.....
22 x 12	6.60	3.50	3.25	3.50	....	5.25	3.00	3.75	.....
22 x 11	6.50	3.75	3.25	3.50	3.35	5.25	3.00	4.00	.....
20 x 12	6 90	3.75	.....	3 50	3.35	5.25	3.00	3.75	.....
20 x 11	6.80	.....	.....	4.00	3.35	5.25	3.00	....	.....
20 x 10	6.80	4.50	3.50	4.00	3.60	5.35	3.25	4.25	9@10
18 x 12	6.80	3.75	.....	3.50	....	5.25	3.00	3.50	.....
18 x 11	7.00	....	....	....	....	....	3.00	3.75	.....
18 x 10	7.20	4.50	3.50	4.00	3.60	5.35	3.25	4.00	9@10
18 x 9	7.10	4.50	3.50	4.00	3.60	5.35	3 00	4 25	9@10
16 x 12	6.80	3.75	....	3.50	....	.....	2.85	3.50	.....
16 x 10	7.10	4.25	3.50	4.00	3.60	5 25	2.85	4.00	9@10
16 x 9	7.00	4.25	.....	4.00	3.60	5.35	2.85	4.25	9@10
16 x 8	7.20	4.50	3.50	4.00	3.60	5.35	2.85	4 25	9@10
14 x 10	6 60	3.75	3.25	3.35	....	5 25	2.75	3.75	9@10
14 x 9	6.50	....	.....	.....	....	....	2.75	3.75	9@10
14 x 8	6 60	3.75	3.25	3.35	3.25	5.10	2.75	4.25	9@10
14 x 7	6.40	3.75	3.25	3.35	3.25	5.10	2.50	4.25	9@10
12 x 10	5.80	....	....	....	.....	...	2.50	3.25	.....
12 x 9	5.60	.....	.....	.....	.....	...	2.50	3.25	.....
12 x 8	5.50	3.50	.....	3.35	3.25	4 85	2.50	3.50	8¼@8¾
12 x 7	5.00	3.25	.....	3.35	3.25	4.85	2.50	3.50	8¼@8¾
12 x 6	4.80	3 25	....	3 35	...	4.75	.....	3 50	8¼@8¼

A square of slate is 100 sq. ft. as laid on the roof.

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. thick, and Peach Bottom 25c. extra per square. Intermediate sea green, $2.25@$2.45 per square, according to size.

CHEMICALS AND MINERALS

(For further prices of chemicals, minerals and rare elements, see page 450.)

New York. Oct. 6.

Acids.—Makers of acetic acid have advanced their price. Last month was a good one for muriatic acid. Sulphuric acid for next year's delivery may be raised in price. In September a large business resulted in sulphuric acid. Blue vitriol has been offered down to $4.75 per 100 lbs. f. o. b. works, by one concern. Oxalic acid was contracted for next year at $5.75 per 100 lbs.

Quotations are in large lots delivered in New York and vicinity, per 100 lbs. unless otherwise specified.

Acetic, com. No 8.	$1.62½	Nitric, 38°.....	$3.75@ 3.80
Blue Vitriol, best	5.00@5 25	Nitric, 40°	4.00@ 4.05
Chamber, 50°, ton.	11.50@12.00	Nitric, 42°.....	4.62@ 4.65
Muriatic, 15°. ...	1.50@ 1.60	Oxalic..... ..	5.75@ 6.00
Muriatic, 20°. ..	1.25@ 1.30	Sulphuric, 66° ..	1.10@ 1.15
Muriatic, 22°.....	1.40@ 1.50	Sulphurous, 100% SO_2 anhydrous.	8.00@10.00
Nitric, 36°	3.50@ 3.55		

Heavy Chemicals.—Demand is good and prices firm. Domestic soda ash is sold up for this year, hence quotations are on 1900 contracts. Bleaching powder, prime, is still limited on spot, and sales are reported at advanced prices. Imports were only 124 casks. Chlorate of potash is in better request. Receipts of domestic goods included 207 bbls. and 575 sacks alkali and 532 drums caustic soda.

Articles.	Domestic.		Foreign.
	F.o.b. Works.	In New York.	In New York.
Alkali, in bags.	77½@82½c.	85@90c.	80@85c.
Caustic Soda, high test....	$1.77½@1.82½	$1.85@$1.90	.....
98% powd....	.....	3 12½@ 3.50	.. . .
60@74 % powd.	.....	2.50@ 2.62½	.....
Sal Soda	60@65c.	....	65@67½
" conc.	1.35@1.60	....	1.60@1.65
Bicarb. Soda..	1.12½@1.25	.....	2.12½@2.25
" " extra	3.25@3.50	.....	
Bleach. Pdr., Eng. prime..	.....	....	1.65@1.75
other br'nds.	.....	....	1.50@1.60
Chl. Pot cryst	.. ..	8.75@9.00	9.25@9.37½
" powd.	....	9.25@9.50	9.50@9.75

Prices are generally for large quantities, and in many cases depend upon make, test and package.

Brimstone.—Heavy arrivals, amounting to 6,550 tons. Spot best unmixed seconds are quoted $21@$21.50 per ton; shipments at $20.75@$21. Best thirds, $2 less. Latest advice puts best unmixed seconds at 75s. ($18) per ton f. o. b. shipping port in Sicily; best thirds, 67s. ($16.08).

Pyrites.—New York arrivals this week were 3,245 tons iron pyrites from Pilley's Island and 2,814 tons copper ore from Tilt Cove. We quote American pyrites as follows: Mineral City, Va., lump ores, $3.25 per long ton (basis 42%), and fines $3; Charlemont, Mass., lump, $5.50, and fines $4.75; Pilley's Island, lump, $6.50, and fines $4.50 per long ton, delivered in New York. Spanish pyrites, 12@14c. per unit, according to percentage of sulphur contents, delivered ex-ship New York and other Atlantic ports. Spanish pyrites contain from 46% to 51% of sulphur; American, 42% to 44%, and Pilley's Island, N. F., 50%.

Fertilizing Chemicals.—Demand is quiet and prices are unchanged. Imports were 4,500 bags muriate of potash, 1,750 bags sulphate of potash, and 453 bags sulphate of ammonia.

Articles.	F. o. b. Wks.	In N. Y.
Potash, muriate, 80@85% 100 lbs.	....	$1.78
" " 95% "	.....	1.81
" sulphate. 90% "	.....	1 98½
" " 96% "	.....	2.10½
" d'ble m're salt, 48@53% 100 lbs.	....	66c.
" " " " 30% "	....	89c.
" kainit, 12.4% long ton.	.....	8.70@8.95
" sylvanit.. per unit.	....	37@38c.
Sulph. Am., gas (25%)....100 lbs.	.....	3.00@3.05
" " bone..... "	.....	2.85@2.90
Blood, dried, h-gr. Chi. per unit	$1.75	.....
" " " N.Y., "	.....	1.85
Azotine..... "	1.75@1.80	1.80@ 1.85
Bone black, diss., 17@18%...ton	....	16.00@16.50
Fish scrap, acid ..... "	10.50@11.00	12 50
" dried .... "	19.50@20	21 50
Tankage h. gr., Chicago.... "	15.00@15.50	21.00
" concentrated.. unit.	1.45@1.50	1.90@1.95
" bone.. ..... ton.	.....	20.00@21.00
Bone, ground ..... "	... .	23.50@25.00

The quotations on potash are on the basis of foreign invoice weights, tares and analysis, in quantities of not less than 500 tons bulk salts or 50 tons concentrated salts.

Phosphates.—Foreign demand has slackened, especially for Florida rock, owing to the high prices asked by miners. In August the exports of high grade Florida rock amounted to 41,155 long tons, according to Messrs. Auchincloss Brothers. The exports for the eight months ending August 31st amounted to 322,356 long tons, against 237,611 tons in the corresponding period last year and 222,998 tons in 1897. The shipments to domestic ports in the eight months totaled 2,423 long tons, against 1,935 tons in 1898 and 928 tons in 1897. The other phosphates are in good request. Latest quotations for the European market, c. i. f. United Kingdom or North Sea ports, are as follows: Florida high grade rock, 8⅞d. ($13.84 per long ton); Florida pebble, 7½d. ($10.50 per ton); Florida Peace River, 7d. ($8.40 per ton); Tennessee high grade rock, 7½d. ($11.85 per ton); Algerian, 63@70% rock, 7¼d. ($9.38 per ton), and 58@63% rock, 6¾d. ($7.80 per ton). We note a charter of 1,394 tons from Charlotte Harbor to King's Lynn at 23s., prompt sailing.

We quote: Florida high grade, 75@80% rock, $9.50@$10 per long ton f. o. b. Fernandina. The frieght rate to New York is about $2 per ton. Florida land pebble, 68@73%, $7@$7.50 per ton, delivered in New York. Florida Peace River rock, 58@63%, $4.50 per ton f. o. b. Punta Gorda. South Carolina crude rock, $4.25@$4.50; hot-air dried, $4.50@$5 per long ton f. o. b. Fetteressa, S. C. Tennessee phosphate rock, $4 f. o. b. mines for export, guaranteed 75% bone phosphate of lime and 3@4% iron and alumina (ex-vessel New York, $9@$10); and $2.50@$2.75 f. o. b. for mixed blue-gray Hickman County rock, guaranteed 65% bone phosphate and not over 3% iron and alumina. The difference in the price of this phosphate and Florida high grade is owing to the higher percentage of iron and alumina in the Tennessee rock. Concentrated phosphates, 13@15% av., P_2O_5, 60@62½c. per unit at sellers' works. Acid phosphate, $6.25 per ton for 14% in bulk f. o. b. Charleston, S. C.

Nitrate of Soda.—The steamer "Magdala" arrived with 5,200 tons, and a charter of 1,517 tons is noted from the west coast of South America to New York at 25s. Sales are reported at $1.70 per 100 lbs. on spot, but quotations are $1.60@$1.62½. Futures are about the same. August statistics give the deliveries in Europe during that month at 50,000 tons, or 5,000 tons less than last year. The total deliveries from January 1st to August 31st are 955,000 tons, or 88,000 tons more than in the corresponding period last year. Stocks in Europe on August 31st amounted to 115,000 tons, as against 61,000 tons in 1898. The visible supply on September 1st was 361,000 tons, or 120,000 tons more than last year.

Messrs. Mortimer & Wisner, of New York, report as below in their monthly circular, dated October 2d:

	1899.	1898.	1897.
	Bags.	Bags.	Bags.
Imp. into Atlantic ports from West Coast S. A., from Jan. 1 to date.	690,027	672,503	420,895
Imp. from Jan. 1 from Europe.....	..	55,171	.....
	690,027	727,674	420,895
Stock in store and afloat Oct. 2, in New York	65,601	70,527	79,888
Boston..	.....	.....	.....
Philadelphia..... ..	.....	.....	2,032
Baltimore .,.....	500	.....	.....
Norfolk, Va	.....	.....	.....
Charleston.....	.....	.....	.....
To arrive, due Jan. 15, 1900.	370,000	285,000	174,000
Vis. supply to Jan. 15, 1900.	436,101	355,527	255,920
Stock on hand Jan. 1, 1899..	58,405	15,383	123,593
Deliveries past month.....	102,535	99,417	58,461
Deliv's since Jan. 1 to date.	682,332	672,530	462,568
Total yearly deliveries....	.....	967,525	710,971
Prices current Oct. 2.....	1.62½c.	1.47½c.	1.65c.

Liverpool. Sept. 26.

(Special Report of Joseph P. Brunner & Co.)

The export demand for heavy chemicals has slackened off a little, but there is a good inquiry from home consumers for their requirements over next year. Soda ash is well maintained, and some makers are refusing orders for propmt delivery. Prices vary according to export market, and the range for tierces may be called about as follows: Leblanc ash, 48%, £4 7s. 6d.@£4 12s. 6d; 58%, £4 12s. 6d.@£4 17s. 6d. per ton, net cash. Ammonia ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton, net cash. Soda crystals are in request, and for most markets £3 2s. 6d. per ton, less 5%, is quoted for barrels, with special quotations for a few favored markets. Bags are 7s. per ton under prices for barrels. Caustic soda is in light supply, while quotations for the Continent have to-day been raised to the extent of 10s. per ton. Present quotations are as follows: 60%, £7 10s.; 70%, £8 10s.; 74%, £9; 76%, £9 5s. per ton, net cash.

Bleaching powder is quoted at £5 5s. per ton and upward for hardwood packages, according to market, and a fair business is passing.

Chlorate of potash still hangs fire and is nominally quoted at 3½d.@3⅝d. per lb. for crystals and 3⅝d.@3¾d. per lb. for powdered, as to quantity.

Bicarb. soda is without change, prices varying according to destinations from £5 5s.@£6 15s. per ton, less 2½% for the finest quality in 1-cwt. kegs, with usual allowances for larger packages.

Sulphate of ammounia, in the absence of demand, has dropped to £12@£12 2s. 6d. per ton, less 2½% for good gray 24@25% in double bags f. o. b. here, as to quality.

Nitrate of soda is selling to a moderate extent at £7 15s.@£7 17s. 6d. per ton, less 2½% for dou-

IRON MARKET REVIEW.

NEW YORK, Oct. 6, 1899.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Oct. 5, 1898		Week ending Oct. 6, 1899.		From Jan., '98	From Jan., '99.
	F'ces.	Tons.	F'ces.	Tons.	Tons.	Tons.
An' racite	26	19,250	43	37,350	885,651	1,337,082
Coke.....	140	189,200	190	228.950	7,806,857	8,613,764
Charcoal.	21	6,475	24	5,750	236,359	218,522
Totals..	187	214.925	257	272,050	8,928,867	10,169,368

The feature of the week in the iron market has been the closing of some large contracts for Bessemer pig. On some of these the deliveries are to extend over to the second and third quarters of next year; but in one case the iron is for delivery in the first quarter. Some details will

be found in our Pittsburg correspondence. These transactions indicate confidence in the continued activity of the trade.

Some good transactions in foundry iron are also reported. Southern iron is in demand, and the Alabama companies have all the orders they can manage. Several additional furnaces will be in blast soon in the Birmingham and Sheffield districts.

Steel billets are in demand, and some mills which depend on purchased billets are in doubt as to supplies. It is not easy to place new orders with any certainty as to delivery. In fact, there are many complaints about delays in furnishing billets on contracts already made.

Some of the steel mills are also complaining of difficulty in getting in the supplies of pig iron which they contracted for some time ago. As to future deliveries, the Bessemer steel makers seem to have covered their requirements fairly well for the present; but there have been some rather anxious inquiries for basic pig.

The high prices are beginning to have some effect on structural work, and there are fewer inquiries for material. This is also the case with the foundries and machine shops, especially in the East. They are beginning to hold back in their buying, evidently in the hope that the new year may bring some concessions.

The rail makers have been holding a meeting and have, it is understood, agreed upon $33 at mill for standard sections as a minimum for next year. Rails are, however, selling at a higher price now.

The railroads in the Central West are considering a general advance of freight rates on iron and steel. The Southern lines also are talking of another advance in pig iron rates. They claim that the present tariffs are very low, considering the general advance in wages and prices of material.

Notes of the Week.

Reports which have been current of large purchases of steel billets in Great Britain for American account seem to have had a very small foundation. The only actual transactions which can be traced are two small orders for special material.

The total value of exports of iron and steel and manufactures thereof, including machinery, from the United States, in the eight months ending August 31st, is reported by the Treasury Department at $68,008,671, against $52,925,082 in 1898 and $40,757,920 in 1897. The exports of pig iron this year were 177,442 tons, as compared with 123,689 tons last year and 151,393 tons in 1897. Exports of steel rails were 159,068 tons, against 196,128 tons last year and 76,313 tons in 1897. Other exports this year included 199,478,533 lbs. wire and wire rods, 99,538,127 lbs. plates and 24,097 tons of billets.

Birmingham, Ala. Oct. 2.

(From Our Special Correspondent.)

Conditions as to pig iron in this district continue as active as they have been during the last six months. The demand is very great, prices stiff, with a tendency to increase. The furnacemen are pretty will stocked up with orders. The sales during the past week were not very startling, though some orders were accepted with delivery to be made next year.

There will be one furnace to go into blast this week—Sloss Iron and Steel Company's furnace No. 2, in the city. The furnace has been repaired thoroughly and has had new linings put in. The average output a day will be nearly 200 tons. Within two weeks one of the furnaces at Ironaton, property of the Alabama Consolidated Iron and Coal Company, will go into blast. Sixty days later the other Ironaton furnace and one iron-maker at Gadsden, Ala., will be ready for the torch. A large stock house has been built at the Ironaton furnaces, capable of holding something like 100,000 tons of raw material. Other furnaces are being worked on with all haste, including No. 2 furnace at Oxmoor, the property of the Tennessee Coal, Iron and Railroad Company, and three furnaces in the neighborhood of Florence and Sheffield. The Oxmoor Furnace will go into blast about December 1st. It is stated that one of the Woodward furnaces, located a few miles below Birmingham, will shortly go out of blast and exensive repairs will be made about it.

The Alabama Consolidated Iron and Coal Company is opening new ore mines on its properties near Ironaton, besides making contracts with private contractors to get out ore. The Sloss Company is hard at work opening new ore mines in this State, while 100 coke ovens are being built and 200 more in prospect. The Alabama Consolidated Iron and Coal Company will construct 400 coke ovens near their Brookwood mines and President M. H. Smith, of the Louisville & Nashville Railroad, has been here recently investigating the construction of a 4-mile track to the place.

The close of the week in local iron trade finds No. 1 averaging $19, with variations on each side of that figure, and No. 2 stiff at $18. Sales are not large. Lack of iron and the bookings for the future already made by Southern furnaces tend to keep down new business to a certain extent.

The following quotations are given: No. 1 foundry, $18.70@$19.70; No. 2 foundry, $18@$18.50; No. 3 foundry, $17@$17.50; No. 4 foundry, $16@$17; gray forge, $16; No. 1 soft, $18.50@$19.50; No. 2 soft, $18@$18.50.

The finished iron market is also in a very active condition, with better prices being asked all around. The puddlers are beginning to stir for an advance in wages, but so far no definite step has been taken.

Buffalo. Oct. 3.

(Special Report of Rogers, Brown & Co.)

There is a noticeable tendency on the part of quite a few of the larger consumers of foundry and mill iron in this territory to hesitate before placing large orders at present prices for delivery very far into next year. Those who have covered for the first quarter figure they are in comfortable shape for the next six months, and it would be bordering too much on speculation to supply their wants for more than six months ahead at prices which net the manufacturer such an abnormal profit. On the other hand, there are casting contracts being let for delivery for far into next year that it seems the part of wisdom to cover on the necessary amount of pig iron to fill the orders. These contracts for iron, together with the regular run of carload and 100-ton orders, has made a comfortable tonnage for the week. Prices remain firm on the basis mentioned below, cash f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $24@$24.50; No. 2 strong foundry coke iron, Lake Superior ore, $23@$23.50; Ohio strong softener No. 1, $23@$24; Ohio strong softener No. 2, $22.50@$23; Jackson County silvery No. 1, $31; Southern soft No. 1, $23.50; Southern soft No. 2, $22.50; Lake Superior charcoal, $24@$25; coke malleable, $23.50@$24.

Cleveland, O. Oct. 2.

(From Our Special Correspondent.)

Iron Ore.—The principal feature in the situation of the iron ore market during the past week has been a fall in the carrying rates from the head of Lake Superior. The inability of vessel men to force the grain carrying rates from up to 5½c. per 100 lbs. made it impossible to keep the ore carrying rates at $2 per ton, where they had been for several weeks. Several days ago the rates dropped to $1.85, which were afterward forced to $1.75, though there was as yet no business done at the last-named figures. An effort is being made to again bring the rates up to $1.85. The rates from Escanaba, on the other hand, have gone up from $1.50 to $1.60 per ton, while from Escanaba they remain at $1.35.

Quotations are as follows: Specular and magnetic ores, Bessemer quality, $4@$4.25; specular and magnetic ores, non-Bessemer, $3.25@$3.75; red hematite ores, Bessemer quality, $3.75@$4.25; red hematite ores, non-Bessemer quality, $2.75@$3.25.

Relative to the rumor that there would be another advance in carrying rates the railroad men say that the matter would come up before the Central Freight Association at its next meeting. The proposition is to advance billets to the sixth class, which will give a 10c. better rate. It is also proposed to add 20c. to the rate on pig iron, all of these prices being from Pittsburg to Chicago, which will be used as a basing rate. The railroad men say that they have noted the prices for which next year's iron is selling and have decided that a share of this prosperity naturally belongs to the carriers. It is likely that the advance will be made.

Pig Iron.—The selling of pig iron has advanced so rapidly that the output of the furnaces is already well sold for the first six months of the year. The sales of Bessemer iron have been especially heavy. The following are the present quotations for iron f. o. b. Cleveland: Lake Superior charcoal, $24.50; Bessemer, $23; No. 1 foundry, $23; No. 2, $22.50; No. 1 Ohio Scotch, $22; No. 2, $21.50; gray forge, $19.

Philadelphia, Oct. 5.

(From Our Special Correspondent.)

Pig Iron.—The transportation question threatens to become a serious one for the coming months. Prices here are more likely to be affected by outside influences than by local causes. Cost of coal, coke, limestone, ore and transportation, to say nothing of cost of labor, are all likely to move upward, and consumers are in the dark as to what is best to do with reference to next year's requirements. To-day's quotations are not reliable, being based on what some necessitous consumers felt they had to offer. No. 1 X foundry is quoted at $24, but higher figures have been quietly offered and accepted; No. 2 X foundry, $23; gray forge, $20.

Muck Bars.—Prices have weakened to $43.50 asked and $32.50 offered.

Billets.—It is impossible to give reliable quotations, but $41@$42 may be given as the limits. The lowest quotation for next year's delivery is $40, and only a moderate business has been accepted. There are negotiations pending to-day for 20,000 tons, but makers scale down all orders to keep their trade supplied.

Bars.—Car builders placed some contracts this week, but the prices paid for common iron are withheld. Refined in small lots commands 2.20c. Electricians and others have begun to order early deliveries of tested iron. The call for special steel bars has pushed prices up to 2.60c. for best grades.

Skelp.—There is no demand at present, but consumption requirements are growing enormously. A great deal of new work is looming up.

Sheets.—The sheet mills, it is needless to say, are as busy as ever. Just now builders and contractors are trying to arrange for deliveries of roofing and corrugated material. Manufacturers are accepting orders for December and January delivery. Sheets are 3@3.10c. for No. 10 and 3.80@3.90c. for No. 28.

Merchant Steel.—The market is reported quiet at present, but the actual consumption of merchant steel is growing all over the New England territory. Steel for machinery and for implements is in greatest demand, and agents report manufacturers as unwilling to book late delivery orders at anything under present outside quotations.

Nails.—There is a quiet market in nails at present, but jobbers say they will have their hands full of business before the close of the month. Factories are trying to get a little stock ahead.

Plates.—The greatest difficulty exists in getting orders in for iron or steel plate. Small buyers have been very persistent this week and do not stop at a tenth or two. The upward tendency spoken of applies chiefly to small orders, though manufacturers assert that there will be no difficulty in getting all the business they can possibly handle this winter at the quotations ruling for small lots. Tank is 3.10@3.20c; shell, 3.30c.; flange, 3.40c.; fire-box, 3.50@4c.

Structural Material.—The manufacturers are unable to give any information regarding a rumored advance. They think it arises out of the fact that offers have been repeatedly made lately by builders and contractors for materials at prices considerably above the ordinary 2½c. rates. The truth is that the mills are in no condition to handle all the business that is drifting toward them.

Steel Rails.—Rails are slowly moving upward. The last meeting shows a vigorous condition of trade and a heavy incoming demand. Girder rail contracts are now being booked at highest figures asked for years. Standard sections are very firm and quotations are $36@$38, with possibility of reaching $40.

Old Rails.—The greatest activity prevails in old rails. All railroad companies having old rail trackage are receiving offers from steel mills for rails, but beyond offers and evasive replies not much has been done. Attempts have been and are being made to purchase 40,000 tons in all from different roads, and the offers may yet be accepted, as they are very attractive. The difficulty in the way is the high price of new steel rails and the difficulty of getting them as soon as the old rails are pulled up. Another trouble in the way is that traffic is so constant and railroad labor so scarce and high that railroad managers don't see their way clear to disturbing their tracks, even to pull up badly worn-out rails. Quotations are $25@$26; old steel rails are $22.

Scrap.—Scrap is king. Every concern that uses scrap wants more than it can get. Business is moderate, because everything that looks like scrap is bought up. Quotations are $26 for steel axles delivered; $28 for iron axles; $21 for old car wheels, and $19@$20 for heavy steel scrap. Choice railroad scrap brought $25 yesterday.

Pittsburg. Oct. 4.

(From Our Special Correspondent.)

The market has shown considerable strength in the past week, there having been large transactions in Bessemer pig iron for next year's delivery. The steel mills have shown confidence in the situation by buying rather heavily, which is taken as an indication that they have sold finished product pretty far ahead at good prices. In finished lines prices are about as last quoted. The billet market is inactive and selling is confined mainly to finished products, such as structural material, bars, plates, etc. The opinion is growing that prices are not likely to go much higher, if indeed they do not gradually recede a trifle. At the same time, there is the certainty of excellent business for the mills up to the middle of next year, on account of the heavy sales already made, at good prices.

Pig Iron.—There has been good selling of Bessemer iron for deliveries running up to July 1st of next year, and in some cases clear up to October 1st. The Valley furnaces are now pretty well sold up through the first quarter of the new

year on Bessemer iron. In foundry iron there is not a great deal to be had before the middle of the year. Gray forge is very scarce, and high prices are being paid. We quote Bessemer iron at $23.25@$23.75; Valley furnace, $24@$24.50, Pittsburg; No. 2 foundry iron, $22.50@$23.50, Pittsburg, and gray forge, $21@$21.50, Pittsburg.

Steel.—The market in billets has been inactive. For delivery this year sales of small lots have been made from $39 to $40, and even higher, according to delivery. For next year quotations are $38@$39. Slabs are about $1 a ton higher.

Bars.—Steel bars continue firm at 2.50c. for far-off deliveries, while for shipment in the next two months higher prices are asked, and in some cases as high as 2.75c. has been paid for shipment within 30 days. Iron bars, from all muck bar, are selling at about the same price as steel bars.

Sheets.—The sheet market is if anything a trifle weaker, and quotations as low as 3.20c. have been made for No. 28 gauge, although some mills quote considerably higher. Galvanized sheets are not very strong, the ruling quotation being 70 and 10% off, with a 15c. freight allowance.

New York. Oct. 6.

There are no particular changes to note in the market. Producers find no let up in the orders pouring in and quotations for pig iron and all finished products are firm with an advancing tendency. Foreign trade feels the high prices, yet their inquiries continue. The hitch is not so much over prices, in fact, as deliveries. Mills and furnaces with orders on hand for months ahead do not care for small orders from abroad on which anything like immediate delivery is required.

Pig Iron.—Buyers find as much trouble as ever in securing what iron they want; so prices stay up. We quote for Northern brands; tidewater delivery: No. 1 X foundry, $24.50; No. 2, $23.75; No. 2 plain, $22.25. Southern brands, New York delivery: No. 1 foundry, $23.75; No. 2 foundry, $22.75; No. 1 soft, $22.50; No. 2 soft, $22; No. 3, $21.

Warrant irons have declined a bit since last reported. Alabama No. 2 foundry remains at $18, but No. 3 has fallen to $16½; No. 4, $15; gray forge, $15.

Bar Iron.—Demand continues active, and the market is very firm, with prices higher. We quote refined iron 2.30c. in large lots on dock, and common, 2.05c.

Plates.—Plates continue very firm and higher prices are not improbable. We quote for large lots at tidewater: Tank, ¼-in. and heavier, 3.10c.; tank, 3/16-in., 3.20c.; shell, 3.25c.; flange, 3.30c.; marine, 3.40c.; firebox, 3.50c.; universals, 3.05c. These quotations are for delivery some months ahead. Tank ¼-in. plates for immediate delivery are quoted up to 4c.

Steel Rails.—There is no change to note. Mills are busy, and prices firm. Quotations nominally are about $35@$35 for standard sections f. o. b. Eastern mills. Smaller rails nominally may be quoted: 12-lb., $40; 16-lb., $40; 20-lb., $38; 30-lb., $38; 40-lb. to standard, $37, with the usual advance for small orders.

Structural Material.—All kinds of structural stuff remains in good demand and prices are evidently up to stay for some time. We quote for large lots at tidewater: Beams, 15-in., 2.50c.; tees, 2.55c.; channels, 2.55c.; angles, 2.45c.

Nails.—Nails have been in good demand, and the market is firm. The New York prices for wire nails are: Car-load lots on dock, $3.10; less than car-loads on dock, $3.15@$3.25; small lots from store, $3.30@$3.40. Cut nails have been advanced 10c., and are quoted on dock in car-load lots, $2.40@$2.50; smaller lots, $2.45@$2.65.

METAL MARKET.

NEW YORK, Oct. 6. 1899.

Gold and Silver.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .47½	$ 49
Peruvian soles and Chilean pesos	.42½	.44½
Victoria sovereigns	4.85	4.89
Twenty francs	3.85	3.90
Twenty marks	4.74	4.80
Spanish 25 pesetas	4.78	4.84

Gold and Silver Exports and Imports
At all United States ports in August and year.

	August.		Year.	
	1898.	1899.	1898.	1899.
GOLD.				
Exports	$15,296,811	$3,283,378	$110,535,475	$29,566,494
Imports	1,955,908	2,059,062	9,679,113	32,218,843
Excess	I. $13,340,903	I. $1,224,316	I.$100,856,362	E. $2,652,349
SILVER.				
Exports	3,551.743	2,843,910	19,098,528	20,012,421
Imports	4,798,478	3,992,970	34,281,397	35,116,395
Excess	E. $1,246,735	E. $1,149,060	E.$15,182,869	E.$15,103,969

This statement includes the exports and imports at all United States ports, the figures being furnished by the Treasury Department.

Gold and Silver Exports and Imports, New York
For the week ending October 5th, 1899, and for years from January 1st, 1899, 1898, 1897, 1896.

Period.	Gold. Exports.	Gold. Imports.	Silver. Exports.	Silver. Imports.	Total Excess, Exp. or Imp.
We'k	.....	$407,406	$145,506	$160,689	E. $577,411
1899..	11,554,661	9,606,155	21,606,592	2,838,474	E. 20,716,624
1898..	6,970,405	89,154,333	26,213,550	2,403,141	I. 58,373,519
1897..	28,123,851	6,710,189	30,805,026	1,810,293	E. 50,408,395
1896..	40,397,348	56,164,666	30,398,940	2,177,069	E. 12,454,553

No gold was exported for the week; the imports were from various sources. The silver exported went chiefly to London; that imported was from Mexico and the West Indies.

The United States Assay Office in New York reports the total receipts of silver at 161,000 oz. for the week.

Average Prices of Silver per oz. Troy.

Month.	1899. Lond'n Pence.	1899. N. Y. Cents.	1898. Lond'n Pence.	1898. N. Y. Cents.	1897. Lond'n Pence.	1897. N. Y. Cents.
January...	27.42	59.36	26.29	56.77	29.74	64.79
February..	27.44	59.42	25.89	56.07	29.68	64.67
March.....	27.48	59.64	25.47	54.90	28.96	63.06
April.....	27.65	60.10	25.95	56.02	28.36	61.85
May.....	28.15	61.23	26.31	56.98	27.86	60.42
June.....	27 77	60.43	27.09	58.61	27.58	60.10
July.....	27.71	60 26	27.32	59.06	27.36	59.61
August....	27.62	60.00	27.48	59.54	24.93	54.19
September	27.15	58.89	28.05	60.68	25.66	55.¼
October ..	.....	.....	27.90	60.42	26.77	57.57
November	.....	.....	27.93	60.60	26.87	57.93
December.	.....	.....	27.45	59.42	26.83	58.01
Year.....	.....	.....	26.76	58.26	27.55	59.79

The New York prices are per fine ounce; the London quotation is per standard ounce, .925 fine.

Average Prices of Metals per lb., New York.

Month.	COPPER. 1899.	COPPER. 1898.	TIN. 1899.	TIN. 1898.	LEAD. 1899.	LEAD. 1898.	SPELTER. 1899.	SPELTER. 1898.
Jan.....	14.75	10.99	22.48	13.87	4.18	3.65	5.34	3.96
Feb.....	18.00	11.28	24.20	14 08	4.49	3.71	6.28	4.04
March...	17.54	11.98	23.82	14 38	4.37	3 72	6.31	4.25
April....	18.43	12.14	24.98	14.60	4.31	3.63	6.67	4.26
May.....	18.25	12 00	25.76	14.52	4.44	3.64	6.88	4.27
June.....	17.93	11.89	25.85	15.22	4.43	3.82	5 98	4.77
July.....	18 33	11.63	29.63	15.60	4.52	3.95	5.82	4.66
August..	18.50	11 89	31.53	16.23	4.57	4.00	5.65	4.58
Sept.....	18.46	12.31	32.74	16.03	4.58	3.99	5.50	4.67
October..	.....	12.41	....	17.42	.....	3.78	.....	4.98
Nov.....	.....	12.86	....	18.20	.....	3.70	.....	5.29
Dec	.....	12.93	.....	18.30	.....	3.76	.....	5.10
Year.....	.....	12.03	.....	15 70	.....	3.78	.....	4.57

The price given in the table is for Lake Copper. The average price of electrolytic copper in January was 14.26c.; in February it was 17.02c.; in March, 16.35c.; in April, 17.13c.; in May, 17.20c.; in June, 16.89c.; in July 17.099; in August, 17.42c; in September, 17.34c.

Financial Notes of the Week.

The speculative markets continue heavy and somewhat dull. This has not, however, affected the general trade situation. Business everywhere continues active and conditions good. The demand for money for trade purposes is active, and the interior banks are still drawing down their balances in New York. It looks very much as though high rates for loans would last for some time.

Matters are somewhat complicated by the London situation. The gold balances there are at a low point, and the shutting down of the Transvaal mines cuts off the chief source of supply. Instead of drawing gold from South Africa, considerable sums are being remitted there for war purposes. New York bankers hesitate about drawing on their foreign balances in the present uneasy state of the London market, and no further takings of gold for American account are reported.

At the annual meeting of the New York Clearing House Association October 4th, the officers already in service were re-elected for the ensuing year, as follows: President, James T. Woodward, president Hanover National Bank; secretary, Francis L. Hine, vice-president First National Bank, New York; manager, William Sherer; assistant manager, William J. Gilpin. To the Clearing House Committee were chosen: Edward H. Perkins, Jr., Edward E. Poor, Frederick D. Tappen, Henry W. Cannon, J. Edward Simmons. For the Arbitration Committee were selected: Dumont Clarke, Stephen Baker, George M. Hard, Clinton W. Starkey, Christian F. Tietjen. The following extracts are taken from the manager's annual report for the year ending September 30th, 1899: The Clearing House transactions for the year have been as follows: Exchanges, $57,368,230,771; balances, $3,085,971,370; total transactions, $60,454,202,141. The average daily transactions were $200,179,477.

The Association is now composed of 44 National banks and 19 State banks. The Assistant Treasurer United States, at New York, also makes his exchanges at the Clearing House. There are 78 banks and trust companies in the city and vicinity, not members of the Associa-

Imports and Exports of Metals.

Port.	Week, Oct. 4. Expts.	Week, Oct. 4. Impts.	Year 1899. Expts.	Year 1899. Impts.
***New York.**				
Aluminum.....long tons	.....	.....	327	12
Antimony ore... " "	.....	‡100	.....	1,365
" regulus.. " "	.....	.....	.....	785
Brass ..... " "	.....	.....	92	.....
Chrome ore..... " "	.....	.....	2,038	.....
Copper, fine..... " "	1,592	661	41.911	20,464
" matte.. " "	.....	110	556	878
" ore. .... " "	.....	2,814	.....	37,364
" ash..... " "	.....	.....	.....	187
" sulphate " "	20	.....	11,433	.....
" other ... " "	.....	.....	.....	135
Cop-nickel matte " "	.....	.....	.....	53
Ferro-mangan'se " "	.....	.....	.....	278
Iron ore..... " "	.....	.....	.....	50
" pig, bar, rod " "	.....	‡205	5,140	3,153
" pipe..... " "	279	.....	22,194	.....
" plates, sheets " "	.....	137	748	146
" other..... " "	.....	.....	1,144	.....
Lead..... " "	690	2,300	42,802	43,218
ore.. ..... " "	.....	.....	.....	941
Manganese, ore. " "	.....	‡12	.....	5,148
Metals, old scrap " "	697	180	3,995	3,536
Composition... " "	250	.....	5.929	140
Nails..... " "	92	.....	15,040	.....
Nickel ..... " "	.....	‡5	1,492	100
" Ore ..... " "	.....	.....	.....	4,020
§Railr'd material " "	.....	‡125	7,122	3,327
Rails, old..... " "	.....	.....	15,417	.....
Spiegeleisen..... " "	.....	.....	.....	462
Steel bars, plates " "	.....	‡342	36,016	12,941
" rails..... " "	.....	.....	43,979	155
" hoops..... " "	.....	.....	831	.....
" wire..... " "	166	.....	30,170	998
" not speci'd. " "	78	163	24,559	11,149
Tin..... " "	.....	25	.....	22,723
" dross or ashes " "	.....	.....	60	.....
" and black plates " "	.....	11,185	.....	26,410
Zinc..... " "	.....	.....	272	358
" dross..... " "	.....	.....	437	.....
" ashes, skim " "	67	40	2,002	181
" ore..... " "	1,498	.....	6,972	.....
" oxide..... " "	47	.....	3,260	288
†Baltimore.				
Alumina ..... bags	.....	.....	.....	3,479
Antimony regulus...casks	.....	.....	.....	286
Chrome Ore.....long tons	.....	.....	.....	2,300
Copper, fine..... " "	1,042	224	27,625	1,354
" matte... " "	.....	.....	.....	.....
" sulphate " "	.....	.....	1,547	.....
" pipe..... " "	.....	.....	100	.....
Ferro-manganese " "	.....	100	.....	1,986
Ferro-silicon..... " "	.....	.....	184	95
Iron pig, bar, etc. " "	20	.....	1,209	5,981
" ore..... " "	.....	3,247	.....	188,771
" pyrites..... " "	.....	.....	.....	41,107
Manganese ore.. " "	.....	.....	.....	47,751
Metals, scrap.... " "	.....	10	4,604	24
Nails ..... " "	17	.....	653	.....
Pipe, iron & steel " "	1,149	.....	10,167	.....
Spiegeleisen..... " "	.....	195	.....	1,028
Steel, bars, pl'es.. " "	590	.....	32,391	.....
" wire ..... " "	65	.....	958	11
" rails..... " "	1,490	.....	53,815	276
not specified.. " "	19	.....	2,739	10
Tin..... " "	.....	.....	563	.....
" dross..... " "	.....	.....	.....	.....
" and blackplates " "	.....	35	.....	2,317
" other..... " "	.....	.....	43	.....
Zinc..... " "	.....	.....	25	5
" dross..... " "	.....	.....	212	.....
" skimmings.. " "	.....	.....	131	.....
***Philadelphia.**				
Antimony.....long tons	.....	.....	.....	10
Chrome ore..... " "	.....	.....	.....	3,060
Copper ore..... " "	.....	.....	.....	32,940
" old..... " "	.....	.....	.....	11
Ferro-manganese " "	.....	.....	.....	1,442
Ferro-silicon..... " "	.....	.....	.....	161
Iron, pig..... " "	.....	‡200	.....	2,620
" ore..... " "	.....	18,400	.....	193,983
" pyrites..... " "	.....	.....	.....	5,250
Manganese ore.. " "	.....	12,700	.....	59,887
Steel sheets..... " "	.....	.....	.....	510
Spiegeleisen..... " "	.....	.....	.....	2,070
Tin..... " "	.....	.....	.....	880
" and black plates " "	.....	‡792	.....	3,853
Zinc dust ..... " "	.....	.....	.....	.....
" ore ... ... " "	.....	.....	3,093	.....

Total United States.§§

Articles.	July. Expts.	July. Impts.	Jan.—July. Expts.	Jan.—July. Impts.
Antimony.. ... long tons	.....	136	.....	731
" ore.... " "	.....	114	.....	942
Copper fine ... " "	8,231	4,325	55,500	16,250
" sulphate . " "	219	.....	11,286	.....
" ore & matte " "	28	515	3,794	4,035
Iron, pig & bar.. " "	21,007	4,875	170,354	24,614
" ore..... " "	3,622	84,861	7.409	297,736
Iron& steel plates " "	5,645	470	40,859	1,406
" " wire " "	8,160	121	63,689	1,530
Steel, billets, rods, etc..... " "	4,530	2,598	59,454	16.355
Steel rails.. .... " "	18,093	509	130,168	1,123
Lead, pigs, bars & old..... " "	7	2	41	141
Lead in ore..... " "	5,066	6,704	42,283	51,083
Nails, cut..... " "	547	.....	5,428	.....
" wire..... " "	3,592	.....	17,160	.....
Tin..... " "	25	2,303	253	19,409
" plates..... " "	19	5,897	193	31,600
Zinc ... . " "	44	49	5,737	593
" ore .... " "	2,558	.....	14,833	.....

*New York Metal Exchange returns. †By our Special Correspondent. §Not specified. ‡Week ending Sept. 29th §§ Monthly returns of the Treasury Department.

The duties on metals under the present tariff law are as follows: Antimony, metal or regulus, ¾c. a lb. Lead, 1½c. a lb. on lead in ores; 2½c. per lb. on pigs, bars etc ; 2½c. on sheet, pipe and manufactured forms. Nickel, 6c. per lb. Quicksilver, 7c. per lb. Spelter or zinc, 1½c. per lb. in pigs and bars; 2c. on sheets, etc. Copper, tin and platinum are free of duty.

tion, which make their exchanges through banks that are members.

The silver market has been very weak owing to dear money in London on account of the Transvaal crisis. The price dropped to 26⅝d. and closes dull but steady at that figure.

The statement of the United States Treasury on Friday, October 5th, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date of last week:

	Sept. 25.	Oct. 5.		Changes.
Gold	$245,024,856	$255,044,493	I.	$10,019,637
Silver	4,862,191	4,972,867	I.	110,676
Legal tenders	17,168,345	16,167,220	D.	1,001,125
Treas. notes, etc.	984,023	1,299,174	I.	315,151
Totals	$268,039,415	$277,483,754	I.	$9,444,339

Treasury deposits with national banks amounted to $81,705,210, a decrease of $444,827 during the week.

The statement of the New York banks—including the 63 banks represented in the Clearing House—for the week ending September 30th, gives the following totals, comparison being made with the corresponding weeks in 1898 and 1897:

	1897.	1898.	1899.
Loans and discounts	$571,993,400	$635,572,800	$714,172,700
Deposits	619,353,200	701,128,200	785,364,200
Circulation	15,790,400	15,498,400	15,216,800
Reserve:			
Specie	92,363,100	136,314,400	150,736,400
Legal tenders	78,023,600	54,544,800	47,329,100
Total reserve	$170,388,700	$190,859,200	$198,065,500
Legal requirements	154,838,300	175,532,050	196,341,050
Balance, surplus	$15,550,400	$15,327,150	$1,724,450

Changes for the week, this year were an increase of $305,200 in circulation; decreases of $7,752,700 in loans and discounts, $13,226,200 in deposits, $4,017,800 in specie, $528,000 in legal tenders and $1,239,250 in surplus reserve.

The coinage executed at the mints of the United States in September and the 3 months of the fiscal year is reported by the Bureau of the Mint, as below:

	September		Three months	
	Pieces.	Value.	Pieces.	Value.
Double eagles.	150,011	$3,000,220.00	530,011	$10,600,220.00
Eagles	293,558	2,935,580.00	1,122,018	11,220,180.00
Half eagles	185,014	925,070.00	255,014	1,275,070.00
Quart'r eagles	31	77.50	31	77.50
Total gold	628,614	$6,860,947.50	1,907,074	$23,095,547.50
Dollars	870,145	870,145.00	2,106,145	2,106,145.00
Half dollars	1,186,145	593,072.50	2,895,417	1,452,708.00
Qr. dollars	2,660,145	665,036.25	5,356,145	1,339,036.25
Dimes	3,130,145	313,014.50	5,760,145	576,014.50
Total silver	7,846,580	$2,441,268.25	16,117,852	$5,473,904.25
Five c. nickels	4,635,320	231,766.00	8,959,320	447,966.00
One c. bronze	3,281,320	32,813.20	6,091,320	60,913.20
Total minor	7,916,640	$264,579.20	15,050,640	$508,879.20
Total coinage	16,391,834	$9,566,794.95	33,075,566	$29,078,330.95

The September coinage was $3,074,861 less than the previous month, principally in gold coin.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings at the corresponding dates last year:

	1898.		1899.	
Banks.	Gold.	Silver.	Gold.	Silver.
N.Y. Ass'd.	$136,314,400	.....	$150,737,400	.....
England	165,884,820	.....	172,963,550	.....
France	373,496,730	$248,533,570	384,708,815	$237,589,535
Germany	121,785,000	62,735,000	132,310,000	68,155,000
Spain	54,115,000	26,785,000	67,150,000	68,640,000
Aus.-Hun.	176,170,000	62,880,000	183,775,000	63,310,000
Neth'l'ds	21,575,000	33,970,000	13,710,000	29,810,000
Belgium	14,200,000	7,100,000	14,495,000	7,250,000
Italy	73,915,000	11,030,000	77,535,000	7,135,000
Russia	523,285,000	21,130,000	457,680,000	25,775,000

The returns of the Associated Banks of New York are of date of September 30th, and the others are of date of September 28th, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to September 21st, 1899, are reported by Messrs. Pixley & Abell's circular as follows:

	1898.	1899.	Changes.
India	£3,413,790	£3,693,700	I. £279 910
China	410.934	948,953	I. 538,019
The Straits	332,237	203,008	D. 129,229
Totals	£4,156,961	£4,845,661	I. £688,700

Arrivals for the week, this year, were £169,000 in bar silver from New York, and shipments, £97,500 to Calcutta and £51,000 to Bombay; total, £148,500; all bar silver.

Indian exchange continues strong, in view of the higher rates for money in India, though exports have not been very heavy of late. The Council bills offered in London were all taken at an average of 16.09d. per rupee.

Other Metals.

Daily Prices of Metals in New York.

October.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London, P'nce	Copper. Lake, cts. ₩ lb.	Copper. Electrolytic, ₩ lb.	Copper. Lond'n standard £ ₩ ton.	Tin, cts. ₩ lb.	Lead, cts. ₩ lb.	Spelter, cts. ₩ lb.
30	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	4.85¼	58⅜	26⅛	18⅜	17½	75 0 0	32⅞	4.57½	5.37½
3	4.85⅜	58	26¼	18⅜	17½	75 7 6	32½	4.57½	5.45
4	4.85½	57¾	26⅜	18¼	17	75 17 6	32⅜	4.57½	5.50
5	4.85⅛	57¾	26⅜	18¼	17	75 15 0	32⅜	4.57½	5.50
6	4.85⅛	57¾	26⅜	18¼	17	75 17 6	32⅜	4.57½	5.50

The quotations given for electrolytic copper are for cakes, ingots and wirebars; the price of electrolytic cathodes is usually 0.25c. lower than these figures.

Copper.—The market continues very dull. Home consumers have abstained almost entirely from buying, and hardly any business is reported, and the lower prices reported last week have so far attracted little attention here. The only inquiries have come from abroad, but business is only feasible in that direction at some slight concessions, which, in several cases, have been granted. While no great pressure to sell is observable, some producers have shown a willingness to meet the market to a certain extent. For Lake copper we have to quote 18¼@18⅜c., and for electrolytic in cakes, wirebars and ingots 17@17⅛c., cathodes 16⅜@16⅞c.

The foreign market has been dominated by the threatening political aspect, and fluctuations have been rather wide. The market opened at £76 2s. 6d., and declined on Tuesday to £75. Towards the end of the week it reacted and closed at £75 17s. 6d. for spot and £76 10s. for three months.

Visible supplies for the second half of September show a decrease of 3,000 tons, but this news had no effect on the market. Refined and manufactured sorts we quote: English tough, £78 15s.@£79 5s.; best selected, £79 5s.@£80 5s.; strong sheets, £86@£86 10s.; India sheets, £83@£83 10s.; yellow metal, 7d.

Tin.—This market has also suffered under the political influence. It opened at £147 5s., a decline of £2 from the closing price of last week, and the middle of the week dropped to £144 5s., but reacted towards the end, closing at £145 12s. 6d. for both spot and three months.

Prices in this country have not followed those established in London, and a fair business was done from day to day. Consumption continues excellent. We have to quote the market at 32⅝c. f. o. b. New York.

Statistics for the month of September show an increase of 200 tons.

Imports of tin at all United States ports are stated by the Treasury Department for the eight months ending August 31st at 50,832,160 lbs., against 43,271,345 lbs. in 1898 and 52,379,198 lbs. in 1897. Of the imports this year, 34,751,338 lbs., or 69.4%, were from the East Indies; 13,237,052 lbs. from Great Britain; 1,951,735 lbs. from Holland; and 892,235 lbs. from other countries.

The total visible supply of tin on October 1st is reported as follows, in long tons of 2,240 lbs.:

	In Store.	Afloat.	Totals.
London	4,179	3,019	7,198
Holland	4,102	722	4,824
U. S., exc. Pacific ports	4,273	2,575	6,848
Totals	12,554	6,316	18,870

This shows an increase of 1,124 tons, or 6.4%, over September 1st, but a decrease of 5,197 tons, or 21.6%, as compared with October 1st, 1898.

Lead.—The market continues strong and active, both in the East and in the West. Prices are unchanged, and we quote New York 4.55@4.60c., St. Louis, 4.47½@4.50c.

The foreign market is very strong and advancing. Spot lead is exceedingly scarce and commanding a premium. Our cables report that Spanish lead for immediate delivery is held for £16 10s., although distant deliveries are obtainable at £15 15s.; English lead is 5s. higher.

For the eight months ending August 31st the Treasury Department reports imports and exports of lead as follows, in pounds:

	In ores and bullion.	Metal.	Totals.
Imports	127,832,578	462,058	128,294,576
Exports	107,757,810	26,902	107,784,712
Balance	20,074,708	435,156	20,509,864

Of the imports, 112,554,431 lbs. were from Mexico, 14,465,269 lbs. from Canada, and the balance from other countries. The imports show an increase of 7,352,733 lbs., or 6.1%, over last year. The exports of foreign lead, most of which is refined here in bond, shows an increase of 10,009,587 lbs., or 10.2%, this year.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is easier; common at 4.47½c., and corroding at 4.52½c. Trading is very light.

Spelter.—Advices received from the West show that the Miners' Association have closed down over 80% of the zinc mines, and intend to keep them closed for at least 30 days, or until the smelters pay the price fixed for ore, $43 for top grade. A number of smelters have already closed down, and under the circumstances it is probable that more will have to do the same, as the stocks of ore in their hands are light. In consequence higher prices are asked, but consumers have so far not entered the market to any great extent. As supplies are so limited the probabilities are that higher values will be established. We understand that transactions have taken place at 5.30@5.35c. East St. Louis, 5.45@5.50c. New York.

The foreign market is firmer, and our cables report business done at £22 7s. 6d. for good ordinary brands, 5s. higher for special brands.

Exports of spelter from the United States for the eight months ending August 31st are reported by the Treasury Department at 12,871,680 lbs., against 16,473,705 lbs. in 1898 and 23,831,910 lbs. in 1897. The exports of zinc ore this year were 16,794 short tons, against 7,207 tons last year and 5,055 tons in 1897. The total exports of ore and metal this year were equivalent to 14,743 long tons of metallic zinc or spelter.

Antimony.—There is no change. We quote Cookson's, 10½@10¾c.; Hallett's, 9⅝@9¾c.; U. S. Star and Hungarian, 9½@9⅝c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots, 33@36c. per lb., and for smaller orders, 35½@38c. London prices are 14@16d. per lb., according to size of order.

Platinum.—Demand is good, and prices are firmer. In large lots we quote $17.75, and for smaller quantities, $18 per oz. in New York.

For chemical ware (crucibles and dishes), best hammered metal, we quote as follows: In lots of 250 grams or more, 67½c. per gram, and for smaller quantities, 70c. per gram; unmanufactured platinum will be supplied in same quantities at 2c. less per gram.

Quicksilver.—The wholesale price in New York is unchanged at $47 per flask. The London price is also unchanged at £8 12s. 6d. per flask, with the same rate quoted from second hands.

Exports of quicksilver from all United States ports for the eight months ending August 31st are reported by the Treasury Department at 980,946 lbs., against 676,379 lbs. last year and 670,982 lbs. in 1897.

The Minor Metals.—Quotations are given below for New York delivery:

	Per lb.		Per lb.
Aluminum.		Bismuth	$1.45@$1.50
No. 1, 99% ingots	35@37c.	Magnesium	$2.75@$3
No. 2, 90% ingots	31@34c.	Phosphorus	40@50c.
Rolled sheets	38c. up	Tungsten	70c.
Alum.-bronze	20@23c.	Ferro-tungsten, 60%	60c.
Nickel-alum	33@39c.		

Variations in price depend chiefly on the size of the order.

LATE NEWS.

A despatch from Pittsburg, October 5th, says: "The Carnegie Steel Company will immediately commence the construction at Rankin of two blast furnaces, each of which will have a capacity of 100 tons per day more than any one of the 4 furnaces at Duquesne. The 2 proposed stacks will have a capacity of 1,400 tons of iron in 24 hours—700 tons per stack. These furnaces will be the largest in the world. The stacks will be 106 ft. high, with 23 ft. bosh. The building of these two furnaces will give Allegheny County a total of 32 stacks, with an aggregate capacity of 3,850,000 gross tons, of which the Carnegie Company will own 19, with a total capacity of 2,700,000 gross tons, or about 70% of the entire capacity. Extensive additions will also be made at once to the Duquesne Works of the Carnegie Company, including a large plant for the manufacture of open-hearth steel and the construction of a reversible blooming mill."

(From Our Special Correspondent.)

The Vindicator Consolidated Gold Mining Company, of Cripple Creek, Colorado, reports that for the months of July and August the net profit was more than enough to pay the quarterly dividend of $50,750, and amounted to $52,890. The output of the property was from 9 shafts worked by the company and lessees. The production by the months is as follows: July, 2,644 tons, gross value, $81,623; charges, $21,860; net value, $59,763. Operating expenses, including payments to lessees, $32,552; net profit for July, $27,210. Of this the company produced 1,220 tons of the gross value of $37,625, and of the net value of $26,456.

The August output was as follows: 2,612 tons of ore, gross value, $78,817; charges, $22,581; net value, $56,236; operating expenses, including payments to lessees, $30,556; net profit for August, $25,679. Of this the company produced 1,024 tons of the gross value of $46,649, and of the net value of $36,884. The balance was produced by the lessees. The main shaft of the company's working is now down to a depth of 820 ft. Two new ore-houses are at present in the course of construction and a new boiler and pump are being put in. Mr. F. J. Campbell has charge of the mine.

MINING STOCKS.

Complete quotations will be found on pages 446, 447 and 448 of mining stocks listed and dealt in at:

Baltimore,	Philadelphia.	Mexico.
Boston.	Spokane.	Paris.
Colo. Springs.	Salt Lake.	Rossland.
Denver.	San Francisco.	Toronto.
New York.	London.	Valparaiso.

New York. Oct. 6.

Speculation is dull, and prices have settled materially. In the coppers Amalgamated sold about 1,000 shares on Tuesday at $89⅛ ex-dividend, recovering to $91¼ later in the week, and on Thursday sales were reported at $90. Anaconda was lower than last week, sales being made at $47½@$50. Tennessee was featureless at $15@$17, and British Columbia at $10¾@$11¾. Markeen Copper and Arizona Lead were without request at $10¾@$11¾ for the former and $7⅞@$8¾ for the latter. Union Copper of North Carolina was dull at $25 bid and $35 asked. Small dealings are reported in Whipsaw Copper, of Arizona, at $12¼@$13.

American Smelting and Refining shares were lower; common at $36@$37, and preferred at $86½@$88, with fair trading. Sloss-Sheffield securities were quiet; common at $38@$40; preferred at $78@$80, and subscriptions at $130@$140. Flemington Coal of West Virginia was $30¾@$32, on limited dealings. Virginia Coal, Iron and Coke was firm at $30 asked.

In the Colorado group the Cripple Creek stocks are influenced by the increased gold production of that district. Elkton sold at $1.15 and Work at 32@34c.; while the cheaper shares showed fair trading.

Brunswick, of California, brought 2c. more, selling at 30c. Standard was firmly held at the recent advance.

Ontario of Utah sold at $7.25@$8, and Horn Silver at $1.25.

Miscellaneous dividends recently declared include the Cambria Steel Company, 2½%, payable November 15th; Susquehanna Iron and Steel Company, first quarterly of 6% (30c. per share), October 16th; Exploration Syndicate, regular quarterly of $2.50 per share, October 10th; National Salt Company, quarterly of 1¾% on the preferred stock, October 16th.

Boston. Oct. 5.

(From Our Special Correspondent.)

Dullness has been the rule all through the week. From day to day we are promised a recovery, but it has not appeared up to date. The renewal of the boom is postponed for a time. Of course there are lots of explanations, tight money and the uneasy London situation being the favorites. Perhaps better ones could be suggested, but they would not meet with approbation from the average worker or operator.

The copper stocks have been neglected for the most part and trading in them has been quiet enough. The market has been a very narrow one, but closes steady. A good many who have been operating on a considerable scale, are out of it for the present.

Calumet & Hecla sold at $797; Boston & Montana at $345; Tamarack, $224; Quincy, $155@$158; Osceola, $86. Sales of Amalgamated were reported at $89. Butte & Boston brought $69; Arcadian, $50; Parrot, $47½. Among the minor stocks Old Dominion sold at $32½; Continental, $33; Isle Royale, $42; Copper Range, $37; Michigan, $10; Mass, $10; Allouez, $10; Rhode Island, $6½; Mayflower, $4.

Gold Dredging sold for $25; the other gold stocks were not much in evidence.

Dominion Coal is a little lower, the common stock selling at $47. New England Gas and Coke was quoted at $26½.

Upon the whole the market is no weaker, and some recovery, at least in the better class of stocks, can fairly be expected. As to the others, it depends on a good many things, but the general opinion favors a fall rather than a rise.

The annual meeting of the Pioneer Gold Mining Company was held at Helena, Mont., October 3d, about 84,000 shares out of 100,000 shares being represented. Directors were elected unanimously as follows: Charles W. Grose, John E. Abbott, Charles H. Howard, Scott F. Bickford, R. H. Jenness, W. B. Mansfield and Mr. Godding, the last three named being new members. A new president is to be elected by the directors.

The vendors of new mining stocks must be finding business rather dull, for there has been more advertising of late. Some of this is in the Boston papers, but more can be found in those of the smaller New England cities where such baits are likely to take. Some of these advertisements are perfect traps for the unwary.

Similarity of names is worked for all it is worth. It may be legal, but to the ordinary mind it looks a good deal like false pretenses when we see "Copper Queen" stock offered for sale cheap—the Copper Queen referred to being a dubious Alaska prospect and not the well known Copper Queen Consolidated of Arizona. The public is very likely to confound the two, which is probably just what the advertisers want.

Salt Lake City, Sept. 30.

(From Our Special Correspondent.)

During the week there were fewer evidences of a breakdown in the Utah mining share market than for two prior weeks, and there are some hopeful signs that bedrock is reached in the general shaking up. Monday started with better trading than usual for the opening day and business was fairly active in the middle of the week, with only minor reactions. Among speculatives there is still some professional rigging, but this is less bold and flagrant. Daly-West is the principal bracing tonic, and the strong demand for these shares, as they steadily advance, exerts an exhilarating influence.

Centennial-Eureka is entirely off the market, the last shares being turned into McCornick & Co. for the Bostonians. Probably the reorganization will occur the coming week. Daisy is a little soft. Daly is firmer, and quietly inquired for. Daly-West is the star performer. The initial dividend will be declared on Monday, and opinion is evenly divided as to the amount—$30,000 or $37,500—with the majority favoring the larger figure. Dexter is firmer and higher. Another gold bar, valued at $12,000, arrived from the mines this week.

Grand Central slowly droops. The impression is deep-seated that there will be no October dividend. Ingot, floated a year ago by the Mercur folk, whose property it joins, has sold between 10 and 12. Those on the inside appear not to have lost faith. Some hopeful values are found, but no strong ore zone is yet cut. Mammoth is higher, due to the dividend—$40,000—payable next week. Mercur is booked to declare the quarterly dividend of $50,000 October 10th, payable on the 20th. The shares retain their strength. Northern Light did considerable business at nearly the same figures as last week.

Ontario is moving up on orders from the outside. I am informed that there will be a Christmas dividend, if not one sooner, and others will follow. Petro is causing much comment. In spite of the bear raid, or on account of it, there was generous buying. The $5,000 dividend will be paid next week. Swansea recovered some of the lost ground. South Swansea remains firm. Sunbeam was very active at 60@65c.; it is in strong favor. Sunshine softens; its champions are less assertive. As not infrequently happens, the better the reports from the Valeo, the weaker the shares.

San Francisco. Sept. 29.

(From Our Special Correspondent.)

There is very little that can be called new in the stock market. The reports from the Comstock continue of the usual character, and there is no outside interest.

An attempt to force up certain stocks had some success, but only a temporary one. The operators were either afraid or unable to work on a scale large enough, and the movement soon came to an end.

Upon the whole it may be said that prices were irregular and closed rather weak, while there was no material increase in the volume of business.

Some prices noted are: Consolidated California & Virginia, $1.50@$1.55; Ophir, $1.05; Caledonia, 88@89c.; Sierra Nevada, 70@75c.; Potosi, 55@56c.; Best & Belcher, 39c.; Overman, 30@31c.; Yellow Jacket, 30c.; Gould & Curry, 23c.; Andes, 12c.; Segregated Belcher, 5c. Outside of the Comstocks the only dealing was in Standard Consolidated, which was sold at $3.20@$3.25.

The Comstock pumps are running steadily, with no new developments up to date.

The cheap power (electric) contract is now signed by all the Comstock companies, and the work under it will soon be started.

London, England. Sept. 26.

(From Our Special Correspondent.)

The stock markets are naturally affected by the near approach of hostilities in the Transvaal. Everyone now considers war to be inevitable and the philatelists in the South African houses are diligently collecting their Transvaal postage stamps in the confident expectation that they will shortly become obsolete. The fact is, they have little else to do, for operations on the Stock Exchange are very few and general business with South Africa is being held back in expectation of hostilities. Quotations of South African shares, both gold and diamond, are falling, and on an average stand about 20% lower than three months ago. People are not being frightened out of their holdings, for no one contemplates any permanent damage being done to the mines; in fact the probability of the Uitlander getting his rights is a considerable inducement for shareholders to sit tight. There are a few professional bears operating quietly for a fall, but they do not make any public noise to frighten holders.

The suspense of the South African market naturally communicates itself to the West Australian and other sections of the mining market, and very little is being done anywhere. Last week I mentioned the bear attack on Lake View Consols. The output of gold for August, 31,500 oz., has silenced their croakings and shown that their prophecy of serious falling off was an effort of their imagination. No new companies have been introduced to the public this week, and under present circumstances we can hardly expect much activity in this direction.

The admirers of Rhodesia as a mining country are naturally discouraged at the political situation in South Africa. Rhodesia is bound to suffer more than any other British colony, for it is cut off from Natal and its communication to the Cape can be interrupted by the Boers. Besides, the natives are disaffected, owing to their doubts as the British supremacy, and even now they are deserting their civilized employments and leaving the mines. The August output of the Rhodesian mines is considerably less than previous months for two of the mines, the Bonsor and the Dunraven, have entirely suspended milling.

A company was recently formed privately, called the London Klondike Development Syndicate, to investigate and develop some coal deposits which have been found near the Klondike in Ballarat Creek. Mr. Joel has had the matter in hand and he has obtained reports from Mr. George Clazy and Mr. Walter Moore. It is agreed that the coal is by no means high class, but it is considered quite good enough to work. Tests on river steamers and for domestic purposes are to be carried out properly before any large amount of money is spent. I should not be surprised if this venture does not prove more profitable than gold mining in this district, and the results should be of interest.

Paris. Sept. 24.

(From Our Special Correspondent.)

The stock market shows some revival this week, and there is a better and more confident feeling than for many weeks past. This is manifest in several directions.

The metallurgical shares are again in demand and nearly all show some advance. In part, this is due to the general improvement; in part to the statements published of new orders; and in part to the prospective utilization of new ore deposits which I noted in my last letter.

The copper stocks show more strength than the price of the metal seems to warrant. The quotations for copper are somewhat lower. It is evident, however, that the statements so industriously put forward of a great decrease in consumption do not meet with full belief. The facts are rather, as I have heretofore said, that this decrease is more apparent than real, and that the published statements of deliveries and stocks give only part of the truth.

The foreign merchandise trade of France for the 8 months ending August 31st is reported by the Ministry of Commerce as follows:

	1898. Francs.	1899. Francs.
Imports	3,121,905,000	2,823,63,3000
Exports	2,269,758,000	2,506,209,000
Excess, imports	852,147,000	317,424,000

The decrease in imports of 298,272,000 fr., or 9.6%, was chiefly in food products. The increase of 236,451,000 fr., or 10.4%, in exports, was largely in manufactures. There was a decrease of 534,723,000 fr., or 62.8%, in the excess of imports over exports.

The most uncertain point of the market is in the Transvaal gold stocks. Our people, who are so largely interested in these stocks, naturally wish to see war averted. Their sympathies incline rather toward the Boers, who wish to preserve their sovereignty intact. They see that the war feeling in Great Britain is carefully fostered and managed by Cecil Rhodes and his adherents in the British South Africa Company, whose grasping tendencies have been so plainly shown. They see also that reforms in the Transvaal are more likely to be hindered than helped by the present overbearing policy of the British Government.

We have had too many instances of this in the past to believe that it is only a claim for justice which is now agitated.

The death of M. Scheurer-Kestner, so much to be regretted, has attracted attention from the newspapers here and abroad on account of the prominence he has recently attained as the able and disinterested champion of the cause of Capt. Dreyfus. It should not be forgotten, however, that the scientific world is indebted to him for his researches into the calorific power of fuels, which have done so much to put the estimation of their relative values upon a proper basis. His name ranks with that of Berthelot, and his work had a high practical as well as scientific value.

Azote.

Toronto, Ont. Sept. 26.

(From Our Special Correspondent.)

The market during the past week has been rather erratic. Some of the leading stocks have shown a decline, such as War Eagle, followed again by a rapid reaction. It is rumored that the dividend on this property will be increased next month, although this rumor has been current for so long that not much credence is placed on it. Golden Star is unchanged. Some of the lesser stocks have been active, notably Deer Park and Silver Bell. Most of the trading has been in the cheaper stocks. Cariboo McKinney has been dull with very little sold. Van Anda and Virginia are the most promising stocks on the list at the present time.

STOCK QUOTATIONS.

NEW YORK.

Name of Company.	Location.	Par val.	Sept. 29 * H.	Sept. 29 * L.	Sept. 30,* H.	Sept. 30,* L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H.	Oct. 4. L.	Oct. 5. H.	Oct. 5. L.	Sales
Adams	Colo.	$10							15						300
Alamo	"	1							.10						500
Alice	Mont.	† 100							.68		.69				
Amalgamated C	Mont.	25					90.75	90.25	89.88	89.63	90.00	89.25	90.25	89.25	
Anaconda, c...	Mont.	25					50.00	48.00	48.38	47.50	49.50	48.75	49.75		18,365
Anaconda Gold	Colo.	5					.45		.45		.46		.43		300
AnchorialLel	"	1					.70		.69		.69				
Argentum-Jun.	Colo.	2					.26		.24		.25				
Belcher	Nev.	3					.22		.20		.21				
Best & Belcher	"	3					.37		.35		.25		.35		300
Breece	Colo.	25					1.55		1.50		1.55				
Brit.Col.Copper	B. C.	10					11.75	11.50	11 25	10.75	11.50	11.00	11.75	11.00	
Brunswick	Cal.	1					.30				.26		.25	.27	200
Catalpa	Colo.	10							.20		.20				
Challar	Nev.	3					.22		.23		.23		.25		
Comst'k T., st's	"	100					.04		.02	.04	.04		.04		1,100
do. bonds	"	100					.04		.02		.04		.04		
Con. Cal. & Va.	"	2½					1.50		1.35		1.50		1.35		550
Croesus	Colo.	1					.02		.01						4,000
Cr. & Cr. Creek	"	1					.11		.11	.10	.10				5,500
Crescent	"	10					.15		.15		.15				
Cripple Cr. Con.	"	1					.16		.16		.16				
Crown Point	Nev.	3					.15		.15		.15				
Dead w'd Terra.	S. Dak						.75		.70		.70		.65	.75	
Danklin		25													
Elkton	Colo.	1					1.17		1.18		1.16				800
Eureka	Nev.	20					.25		.2		.3		.30		
Father de Smet	Dak.	100					.10		.10		.10		.10		
Garf. Con	Colo.	1					.16		.16½		.17				
Gold Coin C.Ok	"	1					2.15		2.18		2.15				
Golden Fleece	"	1					.26		.25		.25		.32	.25	
Gould & Curry	Nev.	3					.25		.30		.30		.33		
Hale&Norcross	Nev.	3					.26		.25		.27		.25		
Homestake	S. Dak	100					65.00		65.00		65.00		65.00		
Horn Silver	Utah.	25					1.25		1.20		1.20		1 25		200
Iron Silver	Colo.	20					.56		.53		.53		.60	.53	
Isabella	"	1					.90		.92		.94		.96	.91	500
Jack Pot	"	1					.63		.64		.63				
Jefferson	"	1					.08½								
King & Pemb	Ont.	10					.18		.18		.18				
Lacrosse	Colo.	10					.14		.16		.16				
Leadville Con.	"	10					.09		.09		.09		.11	.09	
Little Chief	"	10					.19		.19		.19		.23	.19	
Mexican	Nev.	3					.57		.30		.31		.33		
Mollie Gibson	Colo.	5					.27½		.27½		.25		.31	.26	
Morenci Cop. pf	"	1					1.70		1.70		1.745				
Mouiton	Mont.	25					.25		.35		.35		.38		
Mt. Rosa	Colo.	3					.37		.37		.38				1,000
Occidental	Nev.	3					.20		.15		.15				
Ontario	Utah.	10					6.75		8.00	7.50	7.75		7 65		55
Ophir	Nev.	3					1.00		.92		.90		.95		200
Pharmacist	Colo.	1					.07		.07		.07				5,000
Phoenix	Aris.	1					.09		.09		.09		.11	.09	600
Plymouth Con.	Cal.	10					.08		.08		.08		.08		
Portland	Colo.	1					2.25		2.20		2.25		2.20		
Potosi	Nev.	3					.50		.50		.55		.48		
Quicksilver	Cal.	100					2.00		2.00		2 00		1 95		100
do. pref	"	100					7.50		7.50		7.50		7.00		
Savage	Nev.	2½					.23		.20		.25		.25		
Sierra Nevada	"	3					.68		.64		.63		.6		100
Small Hopes	Colo.	20					1.28		1.25		1.25		1.3	1.25	
Specimen	"	1					.09		.11						
Standard Con.	Cal.	1					8.20		8.2		8 25		8.15		
Syndicate	"	10													
Tenn Copper	Tenn	25					17.00	16.00	16 00	15 13	16.00	15.00			
Union	Colo.	1					.34½	.30	.30		.30				
Union Con	Nev.	2½					.25		.35		.33		.33		
Utah Con	"	5					.10		.10		.14				1,000
Work	Colo	1					.32		.32	.31	.34				400
Yellow Jacket	Nev.	5					.28		.25		.30		.25		200

COAL AND INDUSTRIAL STOCKS.

Am. Sm. & Ref.		$100					37	36	36¾	36	36¾	36¼	37		1,041
" " " pf		100					88	87	87	86¾	87	86¼	85¾		1,990
Am.S &W Co n		100					50¾	48¼	45¾	47¼	49½	49¼	48¾		26,170
" " pf'r n		100					95¾	95	93¾	93¾			94½		2,510
Central of N. J.	N. J.	100					120½	119	119	118	119¼	119	119		4,410
Col. C. & I. Dev	Colo.	100									2	1¾			3,100
Col. Fuel & I.	Colo.	100					57	54½	54½	53¾	55¼	54	54¾		9,698
Col. & H.C.&I.	Ohio.	100					18¾	18¾			17½				825
Del. & Hud.	N. Y.	100					123	121½	186¼	185½	122		128		3,210
Federal Steel		100					52¾	51¾	52½	51¼	53¼	52¾	53¾		26,775
" " pf		100					78	77	77½	76¾	78	77½	78		6,765
National Lead.	N. Y.	100					23¾				23½				410
" " pf	Md.	100					110¾				111¼	111	110		160
National Salt		100					48	47	48	47	48	47	47	45	
" " pf		100					77	75	76	73	76	73	79	77	
N. Y., Ont. & W.	N. Y.	100					24½	24¼	24½	23¾	24¾	24½	24½		10,987
Reading, 1st pf.	Pa.	100					59¾	56¾	57½	56¾	58¼	57¾	58¼		20,530
" 2d pf.	"	100					32¾	30¾	31	30¾	31¼		31¾		4,870
Republic I. & S.		100					27½	26¼	26	25¾	26¾	26			4,150
" " pf		100					71	70	70½	70			72¾		1,430
Standard Oil Tr		100					465	462	465	462			468	460	
Tenn.C.,L.&R.R.	Ala.	100					114¾	109	112	109½	115	112½	114		28,225

* Holiday † Ex-dividend.

PHILADELPHIA, PA.

Name of Company.	L'cation.	Par Val.	Sept 28. H.	Sept 28. L.	Sept. 29. H.	Sept. 29. L.	Sept. 30. H.	Sept. 30. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H.	Oct. 4. L.	Sales
Am. Alkali			3.88		4.00	3.75			3.75	3.63	3.88	3.50	3.88	3.75	4,110
" pf.					2.00						2.00		2.25	2.00	1,595
Bethlehem Irn	Pa.		61.50		61.50		61.50		61.00		61.00	60.50	60.75	60.50	382
Bethlehem St'l	"	$50	21.75				21.75		21 75		21 00	20.13	20.00		1,210
Cambria Iron	"	50			45.00	44 88			44.88		44 00	41.50	44 50		466
Cambria Steel	L.T.	50	26 00	24.88	25.00	24.25	24.63	24.38	24.50	23.50	23.5	22 38	23.63	23.38	31,014
Choctaw pref.	Pa.	50	48.00	47 88	47.75		48.00		48.00		48.00				159
Lehigh Val.	"	50	26.00	25.50	26.00		26 00	25.88	26.13	25.75	25 75	5.25	26 00	25.50	2,689
Penna. R. R.	"	50	65 75	65.63	67.75	65.63	65.63	65.50	65.63	65.50	65.38	65.00	65.50	65.38	2,159
Susq I. & S.	"		6 88		7.00	6.75	7.00		6.88	6.5	6.50	6 25	7.00	6.50	5,725
United Gas I.	"	50	163¼	163	162	161¼	162		161¾	160¾	157½	157	159	157¾	2,364
Welsb. of Can.	Can.	100							2.18						100
Welsb. Coml.	"	100													
Welsb Light	"	160	51.50	51.00	51.00				50.88	50.00	50 25	48.00			859

Total shares sold, 52,232.

VALPARAISO, CHILE.* Aug. 12.

Name of Company.	Location.	Capital paid.	Sh.Val. paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile	$3,300,000	$100	4 p.c.	1897	18½	19	18½
Caracoles, silver	"	315,000	100	10 "	1894	5	20	7
Huantajaya (mine) silver	"	1,000,000	100	18 "	1894			
Huanchaca, silver	Bolivia	8,000,000	25	4 "	1895	26	27	26
Oruro, silver	Chile	600,000	200			280	290	280
Todos Santos, silver	"	2,000,000	100	1	1895	5¾	6	6
Agua Santa nitrate	"	3,000,000	50	5 "	1898	151	153	151
Antofagasta, nitrate	"	2,000,000	200	3 "	1898	90	100	115
Soc. Internacional, nitrate	"	1,400,000	40					5
Union, nitrate	"	2,000,000	200			69		46

* Special report of Jackson Bros. Values are in Chilean pesos or dollars.

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares.	Sept. 28. H.	Sept. 28. L.	Sept. 29. H.	Sept. 29. L.	Sept. 30. H.	Sept. 30. L.	Oct. 2. H.	Oct. 2. L.	Oct. 3. H.	Oct. 3. L.	Oct. 4. H.	Oct. 4. L.	Sales
Aetna, cons. g.	$5	100,000									4.50				100
Adven'u'e,Cons	25	100,000	7.00								7.00		7.13	7.00	7.05		660
Alloues	25	80,000									5.75				6.00		200
*Am. Z., L. & S.	25	60,000											55.00		55.00	53 00	570
Anaconda	25	1,200,000											50.13		49.00	47.50	49.63	49.38	280
Arcadian, c.	25	150,000	53.00	49.00							53.00	50.10	50.00	48.25	52.00	50.00	2,322
Arnold, c.	25	60,000	11.50	11.00							12.00	11.63	11.50				405
Ashbed	25	40,000													1.00	.97½	180
Atlantic, c.	25	40,000									30 00		28.75	28 50			195
Baltic, c.	25	100,000	25.00	22.50							24.00		24.50		25.00		770
Bingham, c.&g.	10	190,000	15.50	14.75							16.75	15.25	17.75	16 25	16.75	16.63	6,465
Bonanza, g.	10	300,000	1.88	1.75							1.88		1.88		1.86		900
Boston g.	10	100,000											6.38		6.50		50
Boston & C. C.	2	200,000	.25												*.40	.35	800
Bos.&Mon.Tr.R	25	150,000	352	345							350	347	347	343	342		205
British Col.	5	200,000									10.75						40
Butte & Bost., c	10	200,000	75.00	67.50							81.00	75.00	73.00		73.00	72.00	2,040
Cal. & Hecla, c.	25	100,000	795	785							800	795	795		797	795	66
Catalpa											.40		.40				2,000
Centennial, c.	25	90,000	34.50	33.00							33.00	32.00	32 75	32 25	33 00		880
Central Oil	25	59,720	24.75	23 88							24.25	23.25	24.00	23.00	23.88	23.50	3,625
Cochiti, g.	10	150,000	18 38	18.00							18 25	17.50	18.0	17.50	17.75	17.00	4,106
Copper Range.	10	100,000									37.00		37.00		37.00		400
Crescent, s.	10	300,000	25 00	21.00									24.50		22.50		1,600
Dominion Coal	100	150,000	50 00								51.00	50.00	51.00	46.50	47.50	47.00	2,604
do. pref	100	30,000	116								116		115¼				22
Federal Steel	100	464,843	53.38	52.75							52 75	51.75	52 50	51.50	53.25	52.75	3,935
do. pref	100	532,616	79.00								78 25	77.25	76.88				225
Franklin, c.	25	100,000	18 00								19.00	18.50	18.00		1800.	17 88	445
Gold Coin, g.	5	200,000	.50														300
Humboldt, c.	25	40,000											1.75		1.75		200
I. Royal Con. c.	25	100,000	45.00	43.00							45.00						660
Mass., Con.		100,000	11 50	11.00							12.50	10.50			10.50	10 00	370
Mayflower	1225	100,000	4.00												4.25	4 00	505
Melones	110	167,577															
Merced, g	15	2100,000	12.50	12.00													75
Michigan	25	100,000													10.00		50
Mohawk, c.	25	100,000													22.00	21.50	110
Naps	7	100,000															
New Idria	5	100,000															
N.A.Gold Dre'g	10	100,000	26.50	26 00													110
Old Colony, c.	25	100,000	9.00	8.00							9.25	9.00	9 00	8.50	8.75		535
Old Dominion,c	25	150,000	34 88	32 75							34.2	33 50	33.00	32.5	33.00	31.75	1,335
Osceola, c.	25	93,000	86.50	86.00							87 00		85.00				909
Parrot, s c.	10	229,850	50.00	49.00							49.50	48.00	47.50	46 50	48 80	47.50	1,714
Pioneer, g.	10	100,000											3 00				50
Quincy, c.	25	100,000	155								155	155	155				160
Rhode Island	25	100,000									7.00	6.50	7.00	6.50	6.50		230
Santa Fe, g. & c	10	250,000	12.75	12 00							12 00		12.75	12 00			55
San. Ysabel, g.	5	130,000									13 00	12 13	12 50	12.00	13.00	12.00	1,215
Tamarack, c.	25	60,000	225	224											224		68
Tecumseh, c.	25	90,000	5.00										5.50				25
Tri Mountain	25	100,000									9.50		9 00				250
Union C. L.	25	80,000													5.50		50
United States.	25	250,000	33 13	31.62							32 75	31.00	31.25	31.00	31.00		4,235
U. S. Oil	25	100,000	47.00	45 50							46.75	45.75	45 63	45.00	45.50	45.25	1,643
Utah Cons,g &c	5	3,000,000	42 00	40 75							41.00	39 88	39.38	38.75	39.00	38.00	5,335
Victor	5	200,00															
Victoria	25	100,000	5 00										5 25		5 50	5.25	580
Washington	25	40,000	2.25	2.13									2.25		2.13	2.10	1,830
White Knob	100	50,000													11.50		80
Winona, c.	25	100,000													9 00		50
Wolverine, c.	25	60,000									42.00		42.50	41.00	42.00	20.50	1,285
Wyandotte	25	100,000	4.50								4.50				4.00		150

†Official quotations Boston Stock Exchange. Total sales, 61,308. * Asses ment paid.

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Sept. 20. B.	Sept. 20. A.	Sept. 21. B.	Sept. 21. A.	Sept. 22. B.	Sept. 22. A.	Sept. 30. B.	Sept. 30. A.	Oct. 2. B.	Oct. 2. A.	Oct. 3. B.	Oct. 3. A.	Sales.
Alamo	$1	.10¾	.10¾	.10¾		.10⅝	.10¾	.10⅝	.11	10¾	12	.10⅝	.10¾	4,500
Anaconda	1		.49½	.50	.49	.49	.49¾	.47	.49	.45	.49	.46	.46¾	
Arg'ntumJ	1		.30½	.28¾	.30	.28¾	.30	.26¼	.26¾	.26½	.27	.26⅝	.26¾	5,600
Cadillac	1	.02¾	.03	.02¾	.03	.02¾	.03							11,000
C. C. Con	1	.16⅝	.17	.17¾	.18	.17¼	.17½	.16½	.17	.16¼	.17	.16¼	.17¼	9,000
Dante	1	.22		.22¾	.20	.23¼	.23¾							41,500
ElktonCon	1	1.16½	1.17	1 19		1.19¾	1 20	1.18¾	1.19½	1.17¼	1 20	1.16¾	1.18	14,100
El Paso G.	1	.38	.39	.42¾	.50	41¼	.42¾	.40	.44	.39	.42	.40	.42	1,500
Favorite	1	.06	.06¾	.06⅝	.07¾	.05¼	.05⅝							9,500
Findley	1	.16¾	.17	.16¾	.16⅞	.16¼	.16¾	.17¾	.18	.17¼	.18	.18	.18¼	15,500
Golden Fl.	1	.26	.30		.30	.26		.26	.30	.26¼	.30	.26¼	.30	
Gold Hill	1	.03¾	.03¾	.03¼	.04	.03¼	.03¾							12,000
Ing. Con	1	.10¾	.10¾	.10¾	.10¾	.10⅝	.11							5,500
Isabella	1	.98	.99	.99¾	1.00	.96	.97¾	.93¼	.94	.95	.94¾	.93	.93¼	84,300
Jack Pot	1	.66	.66¾	.65	.66¼	.65	.66	.65	.66	63	.66	63	.65¾	5,900
Lexington	1	.19	.19¼	.19¾	.20	.19¾	.20							15,500
Magnet R.	1	.05¼	.05¾	.05¾	.05¾	.05¾	.05¾							15,500
Matoa	1			.36	.37¾	.36	.36¾	.37½	.39	.35¾	.37	.35	.37	2,100
Midway	1	.07¼	.07¾	.07¼	.07¾	.07¾	.07¾							3,000
Mobile	1	.05	.05¾	.04¾	.05	.05	.05¼							5,000
Mollie Gib.	1			.27¾		.27¼								3,500
Montreal	1			.15¾	.16	.13¾	.13¾							28,000
Moon-A'c'r	1		1.07			93¾	1.00	.92	1.00	.93	.99	.90¾	.91¾	500
Mt. Rosa	1				34		34					.42½	.43	
New Haven	1	.03¾	.03¾	.03¾	.03¾	.03¼	.04							20,000
Oriole	1	.07¼	.07¾	.07¾	.07¾	.07¾	.07¾							14,000
Pilgrim C.	1	.08¾	.09¼		.09½		.09¼							
Pinnacle	1	.33¾	.34	.33¼	.34	.33¼	.33¾	.35¼	.35¾	.35¾	.39	.33¾	.35¾	17,500
Portland	1	2.25	2.25	2.25¾	2.26¼	2.26¾	2.27¾	2.32¼	2.33	2.33	2.34	2 35	2.33	13,725
Prince Alb.	1	.04¾	.04¾	.04¾	.04¾	.04¼	.04¾							19,000
Princess	1	.06¾	.06¾		.06¾	.06¼	.06¾							5,000
Pythias	1		.06¼	.06¼		.06¼	.07							2,000
Specimen	1	.13¾	.13	.13¾		.13¾	.13¾							2,500
Tornado	1		.46	.45	.46	.45	.46	.45¾	.46	.46¼	.47	.46¼	.47	6,000
Trachyte	1	.08¾	.09¼	.09¾	.09¾	.09¼	.10							25,500
Union	1	.34¾	.34¼	.34	.34¾	.34½		.32¼	.33	.33¾	.32½	.32½	.32½	21,000
Uncle Sam	1	.05¾	.06¼	.05¾	.06	.05¾	.06							2,000
Vindicator	1		1.48		1.48			1.40	1 45	1.48	1 45	1 43	1.45	
Work	1	.32¾		.32¼	.32½	.32¼	.33	.31¾	.32¼	.32	.32¼	.31¾	.32	28,000

‡ Colorado Springs Mining Stock Exchange. Sales for three days ending Sept. 22d, 484,225 shares; quotations from Sept 16th to Oct 3d by telegraph.

SPOKANE, WASH.* Sept. 23.

Name of Company.	Par val.	Prices. H.	Prices. L.	Sales.	Name of Company.	Par val.	Prices. H.	Prices. L.	Sales.
Admiral Dewey	$1				Mountain Lion				
Anaconda	1				Noble Five	$1			
Athabasca	1				North San Poil				
Ben Hur	1	.15	.11	4,000	Novelty	1			
Black Tail	1	.18½	12½		Old Ironsides	1	.95		
Buffalo Hump	1				Palo Alto	1			
Buffalo L. Tender	1				Pearl	1			
Cariboo (C'mp McK)	1				Princess Maude	0.10	.12	.11	
Cnespa Blue Jay		01¾	.00¾	45,000	Quilp	1	.17½	10	
Conjecture					Rambler Cariboo	0.25	.50	.47¼	2,000
Crystal		.09	.08	5,000	Rebate	0.10			
Dardanelles	1				Republic (Con)	1	1.30		
Deer Trail No. 2	1	.26	.19		Res M & M		.20	.15¾	3,000
Evening Star	1	.09			San Poil				
Gold Ledge		.07¾	.05	1,000	Slocan Star	1			
Golden Harvest	1				Sullivan		.19	.16½	2,000
Good Luck Con					Summit	0.10			
Hit or Miss	0 05				Syndicate				
Insurgent	0 10	.06¾	.04	9,000	Tom Thumb	1			
Jim Blaine	1				War Cloud		.05	.04¾	17,000
Knob Hill					Waterloo		.10¾	.09	
Lone Pine-Surp. Con	1	.25	.20¾	15,500	Wiarton				
Mabel					Wonderful		.08	.04	
Mark Tapley	0.05								
Miller Creek									
Morning Glory		.10	.1 ⅝	.09½ 5,500					
Morrison			.11	.14					

*Official quotations Spokane Stock Exchange. Total Sales, 109,000.

STOCK QUOTATIONS.

DENVER, COLO.‡

Name of Company.	Par val.	Sept. 25 B.	Sept. 25 A.	Sept. 26 B.	Sept. 26 A.	Sept. 27. B.	Sept. 27. A.	Sept. 28. B	Sept. 28. A.	Sept. 29. B.	Sept. 29. A.	Sept. 30. B.	Sept. 30. A.	Sales.
Mines:														
Anac'da G.	$5	.49	...	.....	.....	.48	.52	.....	.....	.47	.50	.....	.....	500
Arg. J.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.25	.27	2,000
Bankers	1	.12¾	.13¼	.15	.....	.17¾	.20	.....	.....	.....	.....	.....	.....	
CrippleC.C.	1	.....	.17½	.....	.17¾	.....	.....	.....	.....	.....	.17¾	.....	.17¾	
Della S.	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Elkton Con	1	1.20	.....	.....	.....	.....	.....	.....	.....	.....	1.30	.....	.....	
Findley	1	.16¾	.....	.....	.....	.17¾	.18	.....	.....	.18	.....	.....	.....	4,000
Garf. Con.	1	.16	.16¾	.16	.17	.....	.....	.....	.....	.....	.....	.16	.....	
Gold Coin.	1	.....	.....	2.10	.....	.....	.....	.....	.....	.....	.....	.....	.....	4,000
Goldstone.	1	.....	.....	.02¾	.....	.02¾	.03¾	.....	.....	.02¾	.....	.02½	.02¾	1,000
Indepnd'nc	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Iron Clad	1	.06¾	.07¼	.06¼	.07¾	.06¾	.07	.....	.....	.06¾	.07½	.07¼	.....	
Isabella	1	.94	.95½	.....	.96	.94½	.....	.....	.....	.....	.98	.....	.....	200
Jack Pot	1	.....	.....	.....	.....	.05½	.....	.....	.....	.05	.....	.....	.....	500
Jefferson	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Keystone	1	.....	.13¾	.....	.13½	.12	.....	.....	.....	.12½	.12¾	.....	.....	
LosAngeles	1	.....	.....	.03¾	.10	.....	.....	.....	.....	.....	.....	.08¾	.10	
Mollie Gib.	5	.....	.29	.....	.29	.....	.30	.....	.....	.....	.29	.....	.....	
NewZealnd	1	.47	.50	.....	.....	.....	.....	.....	.....	.49	.51	.49½	.....	
Ophir	1	.....	.50	.40	.50	.....	.....	.....	.....	.40	.....	.....	.....	
Pharmacist	5	.....	.06½	.05¼	.05¾	.05¼	.05¾	.....	.....	.05¾	.....	.05¼	.....	1,000
Portland	1	2.30	.....	2.35	2.38	2.40	.....	.....	.....	2.00	.....	2 33	.....	300
Specimen	1	.13¾	.....	13¾	.14½	.....	.....	.....	.....	.14	.14¼	.13¾	.....	2,000
Union Gold	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Work	1	.32	.33	.31¾	.....	.....	.....	.....	.....	.32	.....	.33	.....	
Prosp'cts:														
C C Imp	1	.00½	.....	.00¾	.005	.00¾	.005	.....	.....	.....	.....	.004	.005	10,000
Illinois	1	.01	.....	.01	.....	.01	.01¾	.....	.....	.01	.01¾	.01	.01¾	1,000
Old Gold	1	.01¾	.02	.01¾	.02	.01¾	.02½	.....	.....	.01¾	.02	.01¾	.....	4,000
Puritan	1	.01¼	.01½	.01¼	.01¾	.01¼	.01½	.....	.....	.01¼	.01¾	.0 ¼	.01¾	43,000
Miscell.:														
Acacia	1	.23¾	.23¾	.....	.22½	.21½	.22¼	.....	.....	.21¾	.22¾	.....	.....	
Alamo	1	.10	.11	.10¼	.....	.....	.....	.....	.....	.....	.10½	.10¼	.10¾	
Aola	1	.05¾	.....	.03¼	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Battle Mt.	1	.....	.....	.....	.....	.33½	.37	.....	.....	.....	.....	.37	.....	
Bob Lee	1	.05¼	.05¾	.05¼	.....	.05	.....	.....	.....	.05	.....	.05	.....	1,000
C. C. & M.	1	.13½	.....	.....	.....	.....	.....	.....	.....	.13¾	.....	.13¼	.....	
De Beers	1	.....	.....	.....	.....	.....	.....	.....	.....	.009	.01¾	.....	.....	
Des Moines	1	.05¾	.05¾	.05¾	.....	.05¾	.....	.....	.....	.05¾	.06	.....	.....	
Favorite	1	.07¾	.05¼	.05¼	.....	.05¾	.....	.....	.....	.06¾	.....	.06¼	.....	4,000
G'ld'n Eagle	1	.48	.....	.47	.....	.....	.....	.....	.....	.49½	.60	.....	.50	
Goldstone	1	.....	.....	.02¼	.....	.02¾	.02¾	.....	.....	.02¾	.....	.....	.....	
Gr'nite Hill	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Magnet R.	1	.05¾	.05¾	.05¾	.05¾	.....	.....	.....	.....	.05¾	.05¾	.....	.....	
Mobile	1	.....	.05¾	.....	.....	.....	.....	.....	.....	.....	.....	.05	.....	334
Mt. Beauty.	1	.09¾	.10	.09¾	.09½	.09¾	.....	.....	.....	.09¾	.10	.09¼	.....	2,000
Trachyte	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Wh.of For.e	1	.01¾	.01¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

‡ Official Quotations Denver Stock Exchange. Total sales, 79,534 shares.

SAN FRANCISCO, CAL.

Name of Company.	Location.	Par. value.	Sept. 28.	Sept. 29.	Sept. 30.	Oct. 2	Oct. 3.	Oct. 4.
Alpha Con.	Nev.	1.00	.04	.04	.04	.04	.03	.04
Alta	"	2.00	.04	.04	.06	.05	.04	.04
Andes	"	3 00	.12	.11	.12	.09	.09	.11
Belcher	"	3.00	.23	.24	.28	.24	.22	.23
Best & Belcher	"	3.00	.39	.38	.40	.37	.37	.39
Bullion	"	1.00	.04	.04	.05	.04	.04	.04
Caledonia	"	3.00	.83	.79	.77	.72	.70	.73
Challenge Con.	"	3.00	.32	.30	.30	.33	.25	.29
Chollar	"	3.00	.41	.41	.41	.39	.30	.39
Confidence	"	3.00	.71	.70	.71	.70	.70	.70
Con. California & Virginia	"	2.50	1.50	1.50	1.50	1.40	1.40	1.40
Cons. Imperial	"	1.00	.02	.02	.02	.02	.02	.02
Crown Point	"	3.00	.19	.18	.18	.17	.17	.17
Gould & Curry	"	3.00	.22	.22	.22	.35	.35	.36
Hale & Norcross	"	3.00	.30	.30	.30	.29	.28	.28
Julia Con.	"	1.00	.03	.03	.03	.02	.03	.03
Justice	"	2.00	.08	.08	.08	.07	.07	.07
Kentuck Con.	"	1.00	.04	.04	.05	.03	.03	.03
Mexican	"	3.00	.37	.36	.38	.33	.34	.35
Occidental Con.	"	3.00	.23	.22	.22	.21	.21	.21
Ophir	"	3.00	1.09	1.00	1.05	.98	.93	1.00
Overman	"	2.00	.32	.21	.22	.18	.19	.21
Potosi	"	3.00	.54	.54	.55	.54	.52	.51
Savage	"	2 50	.27	.25	.26	.25	.24	.24
Seg. Belcher & M.	"	2.00	.05	.05	.04	.03	.03	.05
Sierra Nevada	"	3.00	.70	.68	.69	.67	.66	.67
Standard	Cal.	10.00	3 20	3.25	3.25	3.30	3.35	3.00
Union Con.	Nev.	2.50	.38	.37	.41	.38	.36	.37
Utah Con.	"	1.00	.13	.13	.13	.12	.12	.13
Yellow Jacket	"	3.00	.29	.28	.28	.27	.26	.27

Official telegraphic quotations of San Francisco Stock Exchange

TORONTO, CAN.*

Name of Company.	Par val.	Sept. 26. B.	Sept. 26. A.	Sept. 27. B.	Sept. 27. A.	Sept. 28. B.	Sept. 28. A.	Sept. 29. B.	Sept. 29. A.	Sept. 30. B.	Sept. 30. A.	Oct. 2. B.	Oct. 2. A	Sales
Ontario:														
Alice A	$1	.10	.15	.08	.13	.10	.14	.08¾	.12½	.09	.12½	.05¾	.12¼	8,500
Empress	1	.03½	.04½	.03½	.04½	.03½	.04	.03¾	.04½	.03¾	.04½	.03	.04½	20,000
Golden Star	1	.37	.4 ¾	.37¾	.39¼	.36	.38	.35	.38	.36¾	.33	.37	.37	9,300
Ham Reef	1	.21½	.30	.20	.26	.22	.26	.22	.27	.24	.28	.22	.28	600
J. O. 41	1	.02	.03¾	.02¼	.03½	.02	.03¾	.02	.03¾	.02	.03¼	.01	.03	3,000
British Col.:														
Athabaska	1	.39	.41	.38¾	.41	.39	.42	.38	.41	.37½	.40	.38	.41	9,500
Big Three	1	.15	.20	.15	.19	.15	.18	.15	.18½	.15	.18	.15	.20	8,500
Brandt & G.C.	1	.24	.29	.24	.29½	.....	.....	.23½	.29	.....	.....	.26	.30	2,500
Dardanelles	1	.12	.14	.12	.14	.11½	.13¼	.11	.13	.12	.12¼	.11¾	.13¼	5,000
Deer Park	1	.02¼	.04	.02¼	.03¾	.02½	.03¾	.03	.04½	.04¼	.05¾	.03	.05¼	20,5 0
DeerT'lNo.2	1	.22	.23½	.22	.23½	.21	.23½	.21	.24	.20	.22	.20	.23	9,500
FairviewCp	0 25	.07	.08	.07	.07¾	.C7	.07½	.07	.07¾	.07	.07½	.06¾	.07¼	47,000
Minnehaha	1	.13	.16	.13	.17	.13	.16	.11	.16½	.12	.16	.15	.17	1,500
Monte Crist	1	.05	.07	.05	.07	.05	.06¼	.04¾	.07	.04¼	.06¾	.05	.07	200
N'rt'n Belle	1	.02	.02¾	.02	.02¾	.02	.02¾	.02	.03½	.02	.02½	.02	.03¼	24,000
Novelty	1	.02¼	.04	.02¼	.04	.02¼	.04	.03	.04	.03	.03¾	.02¾	.03½	87,000
Old Ir. ns'es	1	1.08	1.16	1.09	1.15	1.08	1.15	1.08	1.15	1.10	1.15	1.09	1.15	2,100
Rambler C.	¾	.45	.49	.45	.48½	.42	.48	.46	.49	.43	.48	.43	.49	6,000
Rathmullen	1	.08¾	.09¾	.08¾	.09¼	.08	.08¾	.07¾	09	.08	.09¾	.08¼	.09	33,000
Republic	.....	1.14	1.25	1 17	1.23	1.15	1.20	1.17	1.22	1.15	1.23	1.15	1.23	7,600
Smuggler	1	.00¾	.01¾	.00¾	.01¼	.00¾	.01	.00¾	.01¼	.01	.0 ¾	.00¾	.01¼	9,300
Van Anda	1	.07¾	.08½	.07¾	.08½	.07½	.08¾	.07½	.08¾	.07¾	.08	.07½	.08½	75,0 0
Victory Tri	1	.05	.06	.04¾	.06	.04	.06	.04	.06	.04¼	.05¾	.04	.06	500
Virginia	1	.08	14	.08	.11	.07	.12	.08	.11	.08	.10¾	.08	11	3,900
War Eagle	.....	3.10	3.30	3.18	3 25	3.13	3 20	3.12	3.19	3 16	3.20	3.08	3.18	1,500
Waterloo	0.10	.10¾	.11¾	.10¾	.11¾	.10¾	.11¼	.10	.11	.10¼	.11	.10	.11	3,500
White Bear	1	.03¼	.04¾	.03¾	.04¼	.04	.04¾	.03¾	.04½	.04¼	.05¾	.04¼	.04¾	23,000
Winnipeg	1	.27¾	.31	.28¼	.30	.28	.31	.28	.31	.29½	.31	.28	.32	9,900
Wonderful	1	.05	.06½	.04	.06¾	.....	.....	.05	06	.....	.....	.05	.06¼	2,000
Develop Co.														
B.C.G F'lds	1	.03¾	.04¼	.03¾	.04¼	.03½	.04½	.03¾	.04¼	.03¾	.04	.03½	.03¾	16,000
Can. G. F. S	0 10	.06¼	.07¾	.04½	.07½	.06½	.07¾	.06	.07¾	.06¼	.07¼	.05	.07¼	1,5 0
Gold Hills	1	.06	.07½	.06	.08	.06	.07¼	.07¾	.07¾	.06¼	.06¾	.05	.07½	12,000

*Official quotations of the Standard and Toronto Mining and Industrial Exchanges. Total shares sold, 407,700.

SALT LAKE CITY, UTAH.*

Sept. 30.

Stocks.†	No. of shares.	Par val.	Bid.	Asked.	Stocks.†	No. of shares.	Par val.	Bid.	Asked
Ajax	300,000	$10	$0.60	$1.42½	Homestake	400,000	$1	$0 05	$0 20
Alice	400,000	25	.50	1.00	Horn Silver	400,000	25	1.00	1.50
Anchor	150,000	10	.50	.....	Joe Bowers	400,000	1	.17¾	.18
Buckeye	500,000	1	.....	.....	Little Pittsburg	400,000	5	.04	.05
Bullion-Beck & Ch.	100,000	10	.....	4.42½	Lower Mammoth	150,000	1	.24	.26
Centennial Eureka	30,000	50	65.00	.....	Mammoth	400,000	5	2.25	.....
Chloride Point	500,000	1	.25	.36	Mercur	200,000	25	7.20	7.35
Daisy	500,000	3	.20	.21¼	Northern Light	400,000	5	.14	16
Dalton	500,000	5	.....	.....	Omaha	300,000	2	.25	.26
Dalton & Lark	2,500,000	1	.07	.....	Ontario	150,000	100	3.76	8 90
Daly	150,000	20	1.38	1.50	Richmond-An.	500,000	1	.18	.20
Daly West	150,000	20	13.66	13 85	Sacramento	1,000,000	5	.47½	.....
Dexter	200,000	5	2.48	2.50	Silver King	150,000	20	.50	.51½
Eagle	150,000	1	.04	.05	Star Consolidat'd	500,000	1	.52	.55
Eagle & Blue Bell	250,000	1	1.85	1.89	Sunbeam	250,000	1	.61	.63
Emerald	300,000	1	.....	.....	Sunshine	250,000	10	25½	.....
Four Aces	250,000	1	.20	.22	Swansea	100,000	5	3.96	4 12½
Galena	100,000	10	.30	.40	South Swansea	150,000	1	1.68½	1 75
Geyser-Marion	300,000	5	.38¾	.40	Utah	100,000	1	.70	1.19
Grand Central	250,000	1	5.15	5.20	Valeo	200,000	10	.40	.....

*From Our Special Correspondent. † Utah companies. ‡ Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

ROSSLAND, BRITISH COLUMBIA.*

Sept. 29.

Name of Company.	No. of shares.	Par value.	Selling price.	Name of Company.	No. of shares.	Par value.	Selling price.
Brandon & Gold. Cr.	1,500,000	$1	$0.27	Lerwick	500,000	$1	$0.15
Brit. Amer. Corp'at'n	7,500,000	5	4.50	Lily May	1,000,000	1	.10
Brit.Col. Dev. Co.	1,500,000	2½	5.25	Lon.&Van.Fin.Dev.Co	500,000	5	.....
Canadian Gold Fields	10,000,000	0.10	.10	London B. C. Gold F.	250,000	5	5.25
Caribou	1,500,000	1	1.30	Monte Cristo	1,000,000	1	.....
Commander	500,000	1	.....	New Gold Fields, B.C.	250,000	1	6.00
Deer Park	1,000,000	1	.....	Novelty	1,000,000	1	.....
Dundee	1,000,000	1	.15	Queen Bess Prop.	120,000	5	5.50
Evening Star	1,000,000	1	.12	Rambler Con.	1,000,000	1	.45
Fern	200,000	½	.40	Reco	1,200,000	1	.....
Gold Fields of B.C.	8,000,000	3¾	.....	Red Mt. View	1,000,000	1	.....
Hall Mines	250,000	5	3.50	St. Elmo	1,000,000	1	.05
Hattie Brown	1,000,000	1	.....	St. Paul	1,000,000	1	.....
Homestake	1,000,000	1	.10	Sarah Lee	1,000,000	1	.....
Iron Colt	1,000,000	1	.....	Silver Queen	1,500,000	1	.15
Iron Horse	1,000,000	1	.....	Slocan Star	500,000	1	1.30
Iron Mask	500,000	1	.75	Vic.Tr MinesDev. Co.	25,000	5	.....
Joale	700,000	1	.....	Virginia	500,000	1	.....
Jumbo	500,000	1	.10	War Eagle Con.	2,000,000	1	3.40
Kenneth	1,000,000	1	.....	Waverly Mines	100,000	5	.....
Keystone	1,500,000	1	.....	White Bear	3,000,000	1	.10
KootenayGold Fields	20,000	5	.....	Wild Horse	600,000	1	.....

* From Our Special Correspondent.

MEXICO.

Sept. 22.

Name of Company.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.	Name of Company.	No. of shares.	Last div'd	Prices. Op'g.	Prices. Cl'g.
Chihuahua:					Hidalgo:				
Gloria	1,500	.....	$50	$50	Real del Monte	2,554	10.00	500	500
Durango:					San Francisco Hc	6,000	2.00	190	195
Barradon y Cab	2,400	.....	40	40	San Rafael y An.	1,200	14.00	1,000	1,000
Candelaria de Pan.	1,200	.....	20	20	do. aviado	1,200	6.00	400	410
Capuxaya	2,400	.....	30	30	do. del Oro	3,000	5.00	20	20
Penoles	2,500	80.00	2,000	2,000	Soledad	960	5.00	300	330
Restauradora	10,000	.....	20	20	Sorpresa	900	5.00	240	250
Rosario y Anexas	44,800	.....	10	10	Union Hacienda	2,000	5.00	380	360
Guanajuato:					Mexico:				
Angustias	2,400	5.00	300	290	Coronas	500	.....	75	75
Cinco Senores y An	2,000	15.00	340	350	Esperanza y An.	3,000	10.00	1,550	1,575
El Oro	500	.....	30	30	Michoacan				
do. pref.	2,000	.....	30	30	Luz de Borda ava	4,000	.....	30	30
Guadalupe Hacie'a	10,000	2.00	225	230	Pueblo:				
Trinidad, aviador	2,000	.....	48	50	Tlauzingo	2,400	.....	27	28
do. aviada	400	.....	40	50	S. Luis Potosi:				
Zona Minera de Paz	2,400	.....	40	55	Concep. y An.	2,400	.....	260	240
Hidalgo:					Sta. MariadelaPaz	2,400	10.00	720	840
Amistad y Concord.	9,600	1.47	25	30	Zacatecas:				
Arevalo	720	.....	200	200	Asturiana y An.	2,500	10.00	190	175
Bartolome de Med.	2,000	.....	65	68	Cabeson	2,400	.....	15	15
Carmen	1,100	7.75	450	400	C'delar. de Pinos.	2,500	.....	15	150
Luz de Maravillas	900	.....	150	120	Palma de Somb.	2,400	.....	100	80
Pabellon	800	27.89	30	20					

NOTE.—In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

PARIS.

Sept. 14.

Name of Company.	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Aciories de Creusot	France	Steel mfrs.	27,000,000	2,000	75.00	1,985.00	2,0 0.00
" " Firminy	"	" "	3,000,000	500	25.00	3,875 00	3,849.00
" " Five-Lille	"	" "	12,000,000	500	85.00	561.00	575.00
" " Huta-Bank	Russia	Iron & steel		500		4,530.00	4,520.00
" " la Marine	France	Steel mfrs.	20,000,000	500	50.00	1,665.00	1,687.50
" " Longwy	"	" "		500	35.00	1,280.00	1,300.00
Anain	"	Coal			220.00	6,020.00	6,06.00
Blache-St. Vaast	"	Steel		1,000	160.00	3,800.00	3,8 0.00
Boleo	Lower Cal.	Copper		500	1.07	2,7 0.00	2,87 .00
Brianak	Russia	Coal & Iron		500		1,256 25	1,265.00
Bruay	France	Coal	3,000,000	400	1,000.00	49,000.00	49,800.00
Cape Copper	S. Africa	Copper	15,000,000	50	1.50	105.00	107.50
Champ d'Or	"	Gold	8,375,000	25	3.75	41.00	45.00
Courrieres	France	Coal	600,000	200	70.00	2,590.00	2,6 0.00
De Beers Consolidated	S. Africa	Diamonds	96,750,000	125	15.62	685.00	674.00
Denain-Anain	France	Steel		500	25.00	1,125.00	1,122.00
Dombrowa	Russia	Coal		500	12.50	1,010.00	1,02 .00
Donetz	"	Steel				1,3 0.00	1,29 0.00
Dourges	"	Coal		1,000	400.00	26,150.00	26,000 00
Dynamite Centrale	France	Explosives		500	12.40	510.00	501.00
Epinac	"	Coal		2,500	31.25	575.00	575.0
Escombrera-Bleyberg	Spain	Lead		500	35.00	1,05 .00	1,115.00
Fraser River	Brit. Col'mb	Gold	250,000	25		7.00	7.00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	85.0	77.50
Lagunas	Chile	Nitrates	16,250,000	125	12.50	30.0	30.00
Laurium	Greece	Zinc & lead	16,300,000	500	30.00	601.00	6.5 0
Lautaro	Chile	Nitrates	13,750,000	125		109.00	109.00
Malfidano	Italy	Zinc	12,500,000	500	40.00	1,310.00	1,33 .00
Metaux, Cie. Fran. de	France	Metal d'iers.	25,000,000	500	30.00	515.00	516 0
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,220.00	1,226.00
Napthe Baku	Russia	Petroleum				777.00	810 00
Napthe, Le	"	"				2,0 0.0	2,0 0.00
Napthe Nobel	"	"				642 00	667.00
" " parts	"	"				12,950.00	13,3 5.00
Nickel	N. Caled'nia	Nickel	10,000,000	250	20.00	393.00	398.0
Penarroya	Spain	Coal, etc.		500	65.00	2,440 00	2,42 .00
Rebecca	Colo'do, U.S.	Gold	5,000,000	25		5.50	5.0
Rio Tinto	Spain	Copper	40,625,000	125	47.70	1,165.00	1,795.00
" " preferred	"	"	40,625,000	125		153.50	138.50
Rive-de-Gier	France	Coal				22.00	22.00
Robinson	S. Africa	Gold	68,750,000	125	12.50	240 00	248.00
St. Etienne	France	Coal			18.00	476.0	465.00
Salines de l'Est	France	Salt		500	11.50	250.0	250.00
Salines du Midi	France	" etc		500	25.00	875.00	875 00
Sels Gem.de la Rus. Mer	Russia	" etc		500	25.00	541.00	545 00
Tharsis	Spain	Copper	33,750,000	50	3.75	208.00	208.50
Vicoigne-Nœux	France	Coal		1,000	780.00	23,500 00	24,000.00
Vieille Montagne	Belgium	Zinc	9,000,000	50	30.00	812.50	825.00

STOCK QUOTATIONS.

LONDON.

Sept. 22.

Name of Company.	Country.	Authorized capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s.d.		£ s. d.	£ s. d.
Alaska Goldfields	Alaska	£300,000	1 0 0	2 1	Mar., 1899	1 0 0	1 2 6
Alaska-Mexican, g	"	200,000	1 0 0	0 4.8	July, 1899	17 6	1 2 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	July, "	5 5 0	5 10 0
Anaconda, c., s	Montana	6,000,000	5 0 0	5 1¼	May, 1899	11 2 6	11 7 6
Chiapas, g., s., c	Mexico	252,500	1 0 0	.....	.....	5 0	7 0
Con. Gold Fields	"	300,000	1 0 0	.....	.....	15 0	1 0 0
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1899	2 6	5 0
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	1 3	3 9
Golden Gate, g	California	80,000	1 0 0	.....	.....	1 0	2 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Aug., 1899	1 1 3	1 3 9
Hall Mines, c., s	British Col	250,000	1 0 0	1 0	May, 1898	7 6	10 0
Le Roi, g	"	1,000,000	5 0 0	.....	.....	6 0 0	6 2 6
Lillie, g	Colorado	250,000	1 0 0	2¼	Oct., 1899	17 6	1 2 6
Montana, g., s	Montana	660,000	1 0 0	6	Apr., 1899	3 6	4 0
Mountain Copper	California	1,250,000	5 0 0	9 0	Sept., 1899	5 2 6	8 7 6
Newfoundland, c	Newfoundland	250,000	1 0 0	.....	.....	7 6	12 6
Palmarejo & Mexican, g., s	Mexico	800,000	1 0 0	.....	.....	1 6	2 6
Plumas-Eureka, g	California	281,250	2 0 0	0 6	Oct., 1896	1 3	2 6
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec.,	5 0	6 3
Sierra Buttes, g	California	245,000	2 0 0	0 6	Apr., "	6	1 0
Stratton's Independence	Colorado	1,100,000	*1 0 0	2 0	Sept., 1899	2 6 3	2 8 9
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Jan., 1899	3 9	6 3
Copiapo, c	Chile	200,000	2 0 0	6 0	July, 1899	3 12 6	3 17 6
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	June, 1899	2 2 6	2 5 0
St. John del Rey, g	Brazil	600,000	1 0 0	1 3	June, 1899	1 8 0	1 9 0
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	July, 1897	2 10 0	3 0 0
Tolima B., s., g	"	80,000	5 0 0	5 0	"	1 10 0	2 0 0
UtahCon., g (HighPndBoy)	Utah	300,000	1 0 0	rts.	Mar., 1898	7 10 0	7 15 0
Velvet, g	BritishCol'mbia	100,000	1 0 0	.....	.....	1 2 6	1 7 6
Ymir, g	"	200,000	1 0 0	.....	.....	1 0 0	1 2 6
British Am. Corp	"	1,500,000	1 0 0	rts.	Dec., 1898	1 0 0	1 1 0
Linares, l	Spain	45,000	3 0 0	12 6	Sept., 1899	8 0 0	9 0 0
Mason & Barry, c., sul	Portugal	630,000	2 0 0	5 0	May, 1899	3 12 6	3 17 6
Rio Tinto, c	Spain	1,625,000	5 0 0	1 7 6	May, 1899	46 7 6	46 10 0
" " pref	"	1,625,000	5 0 0	2 6	May, 1899	6 2 6	6 7 6
Tharsis, c	"	1,250,000	2 0 0	11 0	" 1898	7 17 6	8 2 6
Libiola, c	Italy	252,500	5 0 0	1 6	Sept., 1899	1 17 6	2 2 6
Assoc. Gold Mines	W. Australia	530,000	1 0 0	rts.	Aug., 1899	12 10 0	12 12 6
Broken Hill Prop., s	N.S. Wales	264,000	8 0 0	3 0	Aug., 1899	2 2 0	2 3 0
Great Boulder, Prop	W. Australia	1,750,000	2 0 0	6	Sept., 1899	1 18 6	1 19 6
Hannan's Brownhill, g	"	110,000	1 0 0	7 6	Aug., 1899	11 10 0	11 15 0
Ivanhoe Gold Corp	"	1,000,000	5 0 0	5 0	Oct., 1899	16 7 6	16 12 6
Kalgurlie, g	"	120,000	1 0 0	rts.	Feb., 1899	11 0 0	11 5 0
Lake View Consols, g	"	250,000	1 0 0	£1	Nov., 1899	21 10 0	21 15 0
Mt. Lyell M. & R., l., c	Tasmania	375,000	3 0 0	4 0	Sept., 1899	10 5 0	10 10 0
Mt. Morgan, g	Queensland	1,000,000	1 0 0	7	Sept., 1899	5 5 0	5 12 6
Waihi, g	New Zealand	320,000	1 0 0	2 0	Sept., 1899	7 16 3	8 1 3
West Aust. Jt. Stk. L. & F	W. Australia	1,000,000	1 0 0	1 0	Dec., 1898	5 3	5 9
Champion Reef, g	Colar Fields	220,000	10 0 0	3 6	May, 1899	4 16 3	5 1 3
Mysore Gold, g	"	250,000	10 0 0	4 0	July, 1899	5 10 0	5 12 6
Nundydroog, g	"	242,000	1 0 0	2 0	" 1899	3 0 0	3 2 6
Ooregum, g	"	145,000	1 0 0	6	Aug., 1899	3 10 0	3 12 6
" pref. g	"	120,000	1 0 0	2 6	" 1899	4 12 6	4 15 0
Angelo, g	Transvaal	275,000	1 0 0	5 0	Mar., 1899	5 17 6	6 2 6
Bonanza, g	"	200,000	1 0 0	11 0	June, 1898	3 17 6	4 2 6
British S. Af., chartered	So. Africa	5,000,000	1 0 0	rts.	May, 1899	3 10 0	3 12 6
Cape Copper, c	"	600,000	1 0 0	5 0	July, 1899	4 1 3	4 4 9
" pref. g	"	150,000	2 0 0	5 0	" 1899	4 0 0	4 5 0
City & Suburban (New), g	Transvaal	1,360,000	4 0 0	8 0	Aug., 1899	4 12 6	4 17 6
Con Deep Level, g	"	200,000	1 0 0	x all.	June, 1898	1 5 0	1 10 0
Crown Reef, g	"	120,000	1 0 0	18 0	Nov., 1899	13 15 0	14 5 0
De Beers Con., d	Cape Colony	3,950,000	5 0 0	£1	June, 1899	24 17 6	25 2 6
Durban Roodepoort, g	Transvaal	135,000	1 0 0	5	Sept., 1899	5 7 6	5 12 6
Ferreira, g	"	90,000	1 0 0	20 0	Aug., 1899	19 10 0	20 0 0
Geldenhuis Deep, g	"	350,000	1 0 0	8 0	Aug., 1899	8 5 0	8 15 0
Geldenhuis Est., g	"	200,000	1 0 0	10 0	Aug., 1899	6 0 0	6 2 6
Ginsberg, g	"	160,000	1 0 0	5 0	Aug., 1899	2 15 0	3 0 0
Henry Nourse, g	"	125,000	1 0 0	10 0	Aug., 1899	7 5 0	7 10 0
Heriot (New), g	"	115,000	1 0 0	5 0	Sept., 1899	6 7 6	6 14 6
Jagersfontein, d	Orange Fr. St	1,000,000	5 0 0	9 0	June, 1899	12 15 0	13 5 0
Johannesburg Con. Invest	So. Africa	2,750,000	1 0 0	rts.	Aug., 1897	1 8 9	1 10 0
Jubilee, g	Transvaal	50,000	1 0 0	5 0	Aug., 1899	5 5 0	5 10 0
Jumpers, g	"	100,000	1 0 0	4 0	Nov., 1899	4 7 6	4 10 0
Kleinfontein, g	"	275,000	1 0 0	2 0	Mar., 1899	2 7 6	2 10 0
Langlaagte Estate, g	"	500,000	1 0 0	3 0	June, 1899	2 17 6	3 2 6
May Con., g	"	275,000	1 0 0	6 0	Aug., 1899	3 17 6	4 2 6
Meyer & Charlton, g	"	85,000	1 0 0	8 0	July, 1899	5 10 0	6 0 0
Namaqua, c	Cape Colony	200,000	1 0 0	6 6	June, 1899	4 8 9	4 11 3
Primrose (New), g	Transvaal	300,000	1 0 0	6 0	Aug., 1899	3 11 3	3 13 9
Rand Mines, g	So. Africa	490,000	1 0 0	15 6	Aug., 1899	31 7 6	31 12 6
Robinson, g	Transvaal	2,750,000	5 0 0	8 0	Aug., 1899	8 0 0	8 10 0
Sheba, g	"	1,100,000	1 0 0	0 6	July, 1898	18 9	1 0 0
Sim. & Jack Prop., g	"	5,000,000	5 0 0	4 0	July, 1899	5 5 0	5 10 0
Wemmer, g	"	80,000	1 0 0	15 0	June, 1899	11 15 0	12 5 0
Wolhuter, g	"	860,000	4 0 0	2 0	Feb., 1899	3 16 3	3 18 9
Worcester, g	"	100,000	1 0 0	3 0	July, 1899	2 10 0	3 0 0

† Dividend pending.

MEETINGS.

Name of Company.	Location.	Meeting.	Date.	Place of Meeting.
Alliance	Utah	Annual	Oct. 24.	504 Progress Building, Salt Lake City.
Alpha Con	Nevada	"	Oct 25.	309 Montgomery st., San Francisco, Cal.
Anchor	Utah	"	Nov. 17.	Park City, Utah.
Ben Hur	Colorado	"	Oct. 20	Colorado Springs, Colo.
Boston & Cripple C	Colorado	"	Oct. 7.	Cripple Creek, Colo.
Breece	Colorado	"	Oct. 11.	24 Broad st., New York City.
Central Eureka	California	"	Oct. 24.	320 Sansome st., San Francisco, Cal.
Challenge Con	Nevada	"	Nov. 17.	Mills Building, San Francisco, Cal.
Chrysolite	Colorado	"	Nov. 8.	80 Broadway, New York City.
Comstock Tunnel	Nevada	"	Oct. 10.	45 William st., New York.
Con. Cal & Va	Nevada	"	Oct. 21.	San Francisco, Cal.
Confidence	Nevada	"	Nov. 11.	414 California st., San Francisco, Cal.
Cripple Creek Tun.	Colorado	"	Oct. 10.	318 Boston Building, Denver, Colo.
Edwin Booth	Colorado	"	Sept. 30.	1427 Curtis st., Denver, Colo.
Great Western, q	California	"	Nov. 6.	530 California st., San Francisco, Cal.
Occidental Con	Nevada	"	Nov. 20	309 Montgomery st., San Francisco, Cal.
Oneida	California	Special	Oct. 24.	320 Sansome st., San Francisco, Cal.
Porthill Copper	Wash'gton	"	Oct. 14.	1027 Fourth ave., Spokane, Wash.
Siskiyou Con	California	Annual	Nov. 4.	306 Pine st., San Francisco, Cal.
Vendome	Colorado.	"	Oct. 7.	Denver, Colo.

ASSESSMENTS.

Name of Company.	Location.	No.	Dlq.	Sale.	Amt.	Office.
R. G. W	Utah	2	Aug. 17	Nov. 4	.01	34 W. 2d South st., Salt Lake City.
Acorn	Utah	1	Sept. 23	Oct. 14	.00¼	Wells, Fargo Bank, Salt Lake City.
Alaska	Utah	...	15	Oct. 14	.01½	714 McCornick Bldg., Salt Lake City
Badger Hill & Cherokee	...	...	27	Oct. 19	3.00	320 Sansome st., San Francisco, Cal.
Eureka Con. D	Cal.	20	12	Sept. 30	.00½	1,209 Claus Spreckels Bldg., S. Fra'co
Kate Hayes	Cal.	7	26	Oct. 18	1.00	320 Sansome st., San Francisco, Cal.
Meteor	Utah	...	5	Oct. 10	.00½	304 Dooly Bldg., Salt Lake City.
National Con	Cal.	8	18	Oct. 11	.10	773 Missi n st., San Francisco.
Overman	Nev.	3	22	Oct. 13	.05	414 California st., San Francisco.
Tetro	Utah	9	16	Oct. 7	.01	617 McCornick Block, Salt Lake City
Belcher	Nev.	...	Oct. 25	.....	.15	Mills Bldg., San Francisco, Cal.
Best & Belcher	Nev.	68	27	Nov. 17	.20	309 Montgomery st., San Francisco.
Bingham Placer	Utah	1	16	Nov. 18	.10	201 McCornick Block, Salt Lake City
Bullion	Nev.	15	24	Nov. 14	05	331 Pine st., San Francisco, Cal.
California Borax	Cal.	1	30	Nov. 28	2 00	310 Pine st. San Francisco, Cal
Con. Cal. & Va	Nev.	14	11	Nov. 1	.25	309 Montgomery st., San Francisco.
Eureka Con	Nev.	16	10	Oct. 30	.10	Laidlaw & Co., 14 Wall st., N. Y.
Gould & Curry	Nev.	87	4	Oct. 25	.15	309 Montgomery st., San Francisco.
Marina Marsican	Cal.	20	24	Nov. 15	.05	217 Sacramento st. San Francisco.
Oro Quartz	Cal.	...	2	.....	.04½	.....
Salmon River	Mont	...	20	Nov. 15	.02½	19 W. Granite st., Butte, Mont.
Success	Utah	7	21	Nov. 11	.01	617 McCornick Block, Salt Lake City
Sunbeam Con	Utah	24	5	Nov. 21	.10	419 Dooly Block, Salt Lake City.

DIVIDENDS.

Name of Co.	Date.	Am't.	Paid 1899.	Grand Total.
Alamo, Utah	.....	.....	$2,500	$2,500
Alaska-Mexican	.....	.....	54,000	411,031
Alaska-Treadwell	.....	.....	225,000	4,145,000
Ætna Con	Oct. 2	$15,000	45,000	195,000
Amalgamated Cop	Oct. 16	1,500,000	1,500,000	1,500,000
American Coal	.....	.....	150,000	727,500
American Gold	.....	.....	48,000	434,000
American I. & R. p	Oct 10	568,750	568,750	568,750
American Zn. Mg	Oct. 12	10,000	10,000	10,000
Am Zinc-L. & Sm	Oct. 2	20,000	40,000	40,000
Anaconda Copper	Nov. 1	2,400,000	3,900,000	12,150,000
Anchoria-Leland	.....	.....	54,000	216,000
Apollo Con., Alas	.....	.....	40,000	140,000
April Fool, Nev	.....	.....	11,000	11,000
Argonaut, Cal	.....	.....	163,000	340,000
Associated, Colo	.....	.....	12,000	84,000
Aurora Iron	.....	.....	50,000	800,000
Bald, Butte	.....	.....	97,500	747,141
Bonanza, Wash	.....	.....	5,000	5,000
Bona'za Dev., N.M	.....	.....	1,050,000	1,500,000
Boston-Aurora	.....	.....	15,984	15,984
Boston & Colo. Sm	Oct. 2	11,250	45,000	.....
Boston-Duenweg, z	.....	.....	20,000	20,000
Boston-Little C Zn	Oct. 1	15,000	55,000	55,000
Boston Provid'nce	Oct. 2	750	9,750	9,750
Boston Quick, Cal	Oct. 2	10,000	10,000	10,000
Boston & Cal	.....	.....	72,000	72,000
Boston & Mont	.....	.....	3,150,000	12,275,000
Breece	.....	.....	30,000	60,000
Bul. Bec. & Champ	Oct. 15	10,000	100,000	2,418,400
Bunker Hill & S	.....	.....	105,000	705,000
Calumet & Hecla	.....	.....	8,000,000	64,850,000
Cariboo-M'Kinney	.....	.....	75,000	311,935
Centenn'l Eureka	.....	.....	120,000	2,150,000
Central Lead	Oct. 16	5,000	50,000	132,000
Champion, Cal	.....	.....	8,300	304,700
Charleston, S. C	.....	.....	20,000	200,000
Colorado Sm	.....	.....	100,000	1,945,000
Colonial Lead, Mo	.....	.....	10,000	10,000
Consolidation Coal	.....	.....	205,000	5,716,650
Delta, L. & Z., Mo	Oct. 1	820	2,460	2,460
D'f'r'l No 2 Wash	.....	.....	22,500	40,000
Doe Run, Mo	Oct. 16	2,500	25,000	85,000
De Lamar, Idaho	.....	.....	$48,000	$2,346,000
El Dorado, Cal	.....	.....	10,000	10,000
Elkton, Colo.	.....	$37,500	37,500	694,461
Empire State, Ida	Oct. 16	24,628	192,101	254 003
Fanny Rawlings	.....	.....	20,000	20,000
Ferris-H'g'ty, Wyo	.....	.....	5,000	5,000
Garfield Con	.....	.....	12,000	34,000
Gold Coin, Vict	.....	.....	90,000	240,000
Golden Cycle	.....	.....	75,000	228,500
Golden Eagle, Col	.....	.....	5,000	5,000
Gold King, Col	.....	.....	60,000	60,000
Golden M. & Ex	.....	.....	10,000	10,000
Golden Star, Ont	.....	.....	41,000	41,000
Grand Central, Ut	.....	.....	347,500	666.250
Grass Valley Ex	.....	.....	22 500	22,500
Gwin, Cal	.....	.....	35,000	86.500
Helena & Frisco	.....	.....	125,000	550.000
Hidden Treas., Cal	.....	.....	3,600	3,600
High Five, Colo	.....	.....	10,000	10,000
Holy Terror	.....	.....	25,000	142,000
Homestake	.....	.....	647,500	7,828.750
Horn Silver	.....	.....	40,000	5,270,000
Idaho. B. C	.....	.....	28,000	292.000
Isabella	.....	.....	202,500	472,500
Jack Pot	.....	.....	75,000	75,000
Jamison, Cal	.....	.....	11,700	50,700
Lake Superior Ir	.....	.....	84,000	227,860
Last Chance, B. C	.....	.....	21,000	45,000
Lillie	Oct. 2	11,250	112,500	279,110
Mammoth	.....	.....	180,000	1,530,000
Marion Con., Colo	.....	.....	5,000	300,000
Mead, Cal	.....	.....	40,000	120,000
Mercur	Oct. 20	50,000	100,000	1,341,000
Mo. Zinc Fields, pfd	.....	.....	13,320	13,320
Modoc	.....	.....	90,000	170,000
Montana, Ltd	.....	.....	98,855	453,700
Mont. Ore Pur	.....	.....	480,000	1,280,000
Moon-Anchor, Colo	Nov. 1	45,000	45,000	306,000
Morning Star, Cal	.....	.....	56,400	744,600
Moulton, Mont	.....	.....	20,000	480 000
Mountain Copper	.....	.....	540,000	633,750
Mt. Shasta, Cal	.....	.....	6,000	6,000
Napa Con	Oct. 2	30,000	90,000	1,040,000
New Idria	Oct. 2	$30,000	$90,000	$170,000
New York Zinc	Oct. 2	7,000	7,000	7,000
N.Y.& H.-Rosario	Oct. 20	15,000	135,000	1,125,000
North Star, Cal	.....	.....	50,000	550,000
Olive	.....	.....	12,000	12,000
Okanogan, Wash	Oct. 2	4,000	4,000	4,000
Orig. Empire, Cal	.....	.....	50,000	500,000
Osceola	.....	.....	279,000	2,801,500
Parrot	Oct. 12	315,000	897,000	3,035,898
Pennsylvania, Cal	Oct. 8	10,300	47,650	115,875
PennsylvaniaCoal	.....	.....	800,000	14,050,000
Petro, Utah	.....	.....	10,000	27,500
Pioneer, Cal	.....	.....	12,500	62,500
Portland	.....	.....	540,000	2,377,080
Queen Bess, B. Col	.....	.....	12,150	12,150
Quicksilver (Pref.)	.....	.....	21,500	1,845,411
Quincy	.....	.....	950,000	11,070,000
Rambler Cariboo	.....	.....	10,000	50,000
Raven, Colo	.....	.....	10,000	29,500
Republic, Wash	.....	.....	157,500	323,000
Royal, B. C	.....	.....	50.000	1,050,000
Sacramento	.....	.....	45.000	133,000
St. Joseph Lead	.....	.....	75.000	2,859,500
Santa Rosalie, Cal	.....	.....	5,000	130,000
Silver King	.....	.....	425,000	2,250,000
Small Hopes	.....	.....	25,000	3,325,000
Smuggler	.....	.....	90,000	1,185.000
South Swansea	.....	.....	37,500	150,000
Standard, Cal	.....	.....	46,000	3,879,226
Standard, Ida	.....	.....	30,000	1,745,000
Stratton's Inde'ce	.....	.....	488,000	488,000
Swansea	Oct. 10	5,000	50,000	241,000
Tamarack	.....	.....	240,000	5,910,000
Tomboy	.....	.....	80,000	730,000
United Z. & L., pfd	.....	.....	20,000	20,000
Utah, Utah	.....	.....	2,000	179,000
Vindicator	.....	.....	126.875	253.750
War Eagle, B. C.	.....	.....	236,250	414,000
Weath. Bonanza	.....	.....	1,562	1,562
Wolverine	Oct. 2	120,000	210,000	270,000
Yellow Aster	.....	.....	85,000	253,789
Grand Total	.....	.....	$5,262,990	$30,934,407	207,545,176

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Ætna Cons., q	Cal	$500,000	100,000	$5	*				$195,000	Oct.	1899	.10
2	Alaska-Mexican, g	Alask	1,000,000	200,000	5					411,081	July.	1899	.10
3	Alaska-Treadwell, g	Alask	5,000,000	200,000	25	*				4,145,000	July.	1899	.37½
4	Alamo, g. c. i	Utah	125,000	125,000	1	$937	Mar.	1898	.00¼	2,500	April	1899	.02
5	Alice, g. s	Mont.	10,000,000	400,000	25	*				1,075,000	April	1898	.05
6	Amalgamated, c	Mont.	75,000,000	750,000	100					1,500,000	Oct.	1899	2.00¼
7	American Coal	Md	1,500,000	60,000	25					727,500	Sept.	1899	1.25
8	American Gold, g. s. c. l	Colo.	3,000,000	300,000	10	*				434,000	June	1899	.09
9	Amer. Sm. &Ref., pref.	U. S.	32,500,000	32,500	100					568,750	Oct.	1899	1.75
10	Am. Zinc, Lead & Sm.	Mo	500,000	200,000	25					40,000	Oct.	1899	.10
11	Anaconda Copper	Mont.	30,000,000	1,200,000	25					12,150,000	Nov.	1899	2.00
12	Anchoria-Leland, g	Colo.	600,000	600,000	1	*				198,000	April	1899	.03
13	Appie Ellen, g	Colo.	600,000	600,000	1					25,000	Aug.	1898	.01
14	April Fool	Nev	500,000	500,000	1					11,000	Sept.	1899	.01
15	Argonaut	Cal	2,000,000	200,000	10					340,000	Aug.	1899	.10
16	Associated, g	Colo.	1,250,000	1,250,000	1	*				84,000	Feb.	1899	.01
17	Atlantic, c	Mich.	1,000,000	40,000	25					780,000	Feb.	1898	1.00
18	Aurora, i	Mich.	2,500,000	100,000	25	*				890,000	June	1899	.50
19	Bald Butte	Mont.	250,000	250,000	1	*				747,141	Sept.	1899	.06
20	Big Six, g. s	Colo.	500,000	500,000	1					15,000	May.	1898	.00½
21	Bonanza	Wash	1,000,000	1,000,000	1	*				5,000	Sept.	1899	.00¼
22	Bonanza, Dev	NMex	3,000,000	300,000	10					1,500,000	June.	1899	3.50
23	Boston-Aurora, pref	Mo	800,000	32,000	25					15,984	Sept.	1899	.17
24	Boston & California	Cal	600,000	600,000	1					72,000	June	1899	.05
25	Boston-Little Circle, z.	Mo-K.	1,000,000	100,000	10	*				45,000	Sept.	1899	.15
26	Boston & Mont. Con	Mont.	3,750,000	150,000	25	*				12,275,000	Aug.	1899	10.00
27	Boston, q	Cal	1,000,000	100,000	10	*				10,000	Oct.	1899	.10
28	Breece, i	Colo.	5,000,000	200,000	25					60,000	Sept.	1899	.05
29	Bullion-Beck & Champ.	Utah.	1,000,000	100,000	10	*				2,408,400	Sept.	1899	.10
30	Bunker Hill & S., s. l	Idaho	3,000,000	300,000	10					705,000	May.	1899	.07
31	Calumet & Hecla, c	Mich.	2,500,000	100,000	25					64,850,000	Sept.	1899	20.00
32	Centen l-Eureka, g.s.l.c	Utah.	1,500,000	30,000	50	30,000	Mar.	1889	1.00	2,150,000	Aug.	1899	.50
33	Central Lead, l	Mo	1,000,000	10,000	100	*				127,000	Sept.	1899	.50
34	Champion, g. s	Cal	340,000	34,000	10					296,200	April	1898	.25
35	Charleston, p. r	S. C.	1,000,000	10,000	100	*				200,000	June.	1899	2.00
36	Consolidation Coal	Md	10,250,000	102,500	100					5,716,650	Feb.	1899	2.00
37	Con. Tiger & Poorman	Idaho	1,000,000	1,000,000	1	*				20,000	Dec.	1898	.02
38	Croesus, g	Cal	1,000,000	200,000	5					30,000	Dec	1898	.15
39	Crowned King, g. s. l	Ariz	6,000,000	600,000	10	*				232,000	Dec.	1898	.02
40	Deadwood-Terra, g	S. D.	5,000,000	200,000	25	*				1,350,000	May.	1898	.15
41	De Lamar, g. s	Idaho	2,000,000	400,000	5					2,346,000	May	1899	.12
42	Delta Lead & Zinc	Mo	100,000	100,000	1	*				2,460	Oct.	1899	.00¼
43	Deer Trail No. 2	Wash	1,000,000	1,000,000	1					40,000	Sept.	1899	.00¼
44	Doe Run, l	Mo	500,000	5,000	100					85,000	Sept.	1899	.50
45	Elkton Cons., g	Colo.	1,250,000	1,250,000	1					694,461	Sept.	1899	.03
46	El Paso, g. s	Colo.	650,000	650,000	1					12,393	Jan.	1898	.01
47	Empire State-Idaho	Idaho	1,000,000	100,000	10					229,375	Sept.	1899	.30
48	Enterprise, s. l	Colo.	500,000	500,000	1					900,000	Sept.	1898	.05
49	Fanny Rawlings, g. s	Colo.	1,000,000	1,000,000	1					20,000	Aug.	1899	.01
50	Ferris-Haggarty, c.g.s.	Wyo.	1,000,000	1,000,000	1					5,000	Mar.	1899	.00½
51	Garfield Con., g	Colo.	1,200,000	1,200,000	1					34,000	May.	1899	.01
52	Geyser-Marion, g	Utah.	1,500,000	300,000	5					96,000	Sept.	1898	.02
53	Gold Coin of Victor, g	Colo.	1,000,000	1,000,000	1					240,000	Sept.	1899	.01
54	Golden Cycle, g	Colo.	1,000,000	200,000	5					228,500	Sept.	1899	.05
55	Gold King, g	Colo.	1,000,000	1,000,000	1					60,000	July.	1899	.03
56	Golden Eagle, g	Colo.	500,000	500,000	1					5,000	July.	1899	.01
57	Golden Reward, g	S. D.	1,000,000	100,000	10					155,000	Feb.	1898	.15
58	Grand Central, g	Utah.	250,000	250,000	1					666,250	Sept.	1899	.24
59	Grass Valley Expl	Cal	100,000	30,000	2	*				22,500	July.	1899	.25
60	Gwin, g	Cal	1,000,000	20,000	50	286,000	Jan.	1898		81,500	Aug.	1899	.25
61	Helena & Frisco, l. s	Idaho	2,500,000	500,000	5	*				550,000	June	1899	.25
62	Holy Terror, g	S. D.	500,000	500 000	1					142,000	July.	1899	.01
63	Homestake, g	S. D.	21,000,000	210,000	100	200,000	July.	1878	1.00	7,828,750	Sept.	1899	.50
64	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*				5,270,000	July.	1899	.05
65	Iowa, g	Colo.	1,000,000	1,000,000	1					95,000	June.	1898	.00½
66	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	*				507,500	April.	1898	.02
67	Isabella, g	Colo.	2,250,000	2,250,000	1					472,500	Sept.	1899	.01
68	Jack Pot, g	Colo.	1,250,000	1,250,000	1					75,000	Sept.	1899	.04
69	Jamison	Cal	3,900,000	390,000	10	144,000	Nov.	1896	.17	50,700	April.	1899	.10
70	Lake Superior Iron	Mich.	2,100,000	84,000	25					736,000	Feb	1899	1.00
71	Lillie, g	Colo.	1,250,000	250,000	5					279,110	Sept.	1899	.05
72	Mammoth, g. s. c	Utah.	10,000,000	400,000	25	*				1,530,000	Sept.	1899	.15
73	Marion Con	Colo.	5,000,000	500,000	10	*				300,000	May.	1899	.01
74	Matoa, g	Colo.	1,000,000	1,000,000	1					25,000	Dec.	1898	.02½
75	Mead, g	Cal	200,000	200,000	1					120,000	June.	1899	.20
76	Mercur, g	Utah.	5,000,000	200,000	25	*				1,291,000	July.	1899	12½
77	Minnesota Iron	Minn.	16,500,000	165,000	100	*				4,735,000	Oct.	1898	1.50
78	Missouri Zinc Fields, pf	Mo	400,000	16,000	25					13,320	Sept.	1899	.17
79	Modoc, g	Colo.	500,000	500,000	1					170,000	Sept.	1899	.02
80	Montana, Ltd., g. s	Mont.	3,300,000	657,128	5	*				453,700	April.	1899	.12
81	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*				1,280,000	Sept.	1899	1.00
82	Moon-Anchor Con., g	Colo.	1,750,000	600,000	1					261,000	Nov.	1898	.07½
83	Morning Star, g	Cal	240,000	2,400	100	70,800	Feb.	1887	.75	744,600	Sept.	1899	3.00
84	Mt. Rosa, g	Colo.	1,000,000	1,000,000	1					60,000	Jan.	1898	.02
85	Mt. Shasta	Cal	100,000	20,000	5					6,000	May.	1899	.30
86	Moulton	Mont.	2,000,000	400,000	5					480,000	Feb.	1899	.05
87	Mountain Copper	Cal	6,250,000	250,000	25					633,750	Sept.	1899	2.16
88	Napa Cons., q	Cal	700,000	100,000	7	*				1,040,000	Oct.	1899	.30
89	New Central Coal	Md	1,000,000	50,000	20					470,000	April.	1899	.40
90	New Idria, q	Cal	500,000	100,000	5					170,000	Oct.	1899	.30
91	New York Zinc	Mo	700,000	28,000	25					7,000	Oct.	1899	.25
92	N.Y.&Hon Rosario, s.g.	C. A.	1,500,000	150,000	10	*				1,110,000	Sept.	1899	.10
93	North Star, g	Cal	5,000,000	500,000	10	20,000	June	1885	.02	550,000	April.	1899	.25
94	Nugget	Colo.	1,000,000	1,000,000	1					20,000	Aug.	1898	.00½
95	Orphan Bell, g	Colo.	1,000,000	1,000,000	1					115,000	Mar.	1898	.01
96	Original Empire, g	Cal	5,000,000	50,000	100	92,500	Aug.	1896	1.25	500,000	May.	1899	1.00
97	Osceola, c	Mich.	2,500,000	93,000	25	*				2,801,500	June.	1899	3.00
98	Parrot, c	Mont.	2,300,000	230,000	10	*				2,690,898	May.	1899	1.50
99	Pennsylvania Coal	Pa	5,000,000	150,000	50					14,050,000	May.	1899	8.00
100	Pennsylvania Cons	Cal	5,150,000	51,500	100	50,051	Feb.	1892	.05	105,575	Sept.	1899	.20
101	Petro, g	Utah.	1,000,000	200,000	5					5,000	July.	1899	.02½
102	Pioneer	Cal	1,000,000	100,000	10					62,500	Mar.	1899	.12½
103	Portland, g	Colo.	3,000,000	3,000,000	1	*				2,347,080	Sept.	1899	.02
104	Quicksilver, pref	Cal	4,300,000	43,000	100					1,845,411	May.	1899	.50
105	Quincy, c	Mich.	2,500,000	100,000	25	*				11,070,000	Aug.	1899	6.00
106	Raven, g	Colo.	1,500,000	1,500,000	1					29,500	Sept.	1899	.00½
107	Republic Cons., g	Wash	3,500,000	3,150,000	1					323,000	Sept.	1899	.01
108	Sacramento, g	Utah.	5,000,000	1,000,000	5					133,000	Sept.	1899	.00½
109	St. Joseph, l	Mo	3,000,000	300,000	10	*				2,859,500	June.	1899	.50
110	Santa Rosalia, g.s	Cal	100,000	100,000	1					125,000	Feb.	1898	1.10
111	Silver King, g. s. l	Utah.	3,000,000	150,000	20	3,000	Jan.	1897	.02	2,250,000	Sept.	1899	.25
112	Small Hopes, s	Colo.	5,000,000	250,000	20	*				3,325,000	Feb.	1899	.10
113	Smuggler, s. l. z	Colo.	1,000,000	1,000,000	1					1,185,000	Sept.	1899	.01
114	South Swansea, s. l.	Utah.	150,000	150,000	1					150,000	Sept.	1899	.05
115	Standard Cons., g. s	Cal	2,000,000	200,000	10	99,888	June.	1890	.50	3,879,226	Aug.	1899	.10
116	Standard	Idaho	500,000	500,000	1					1,745,000	April.	1899	.06
117	Stratt n's Independ'ce	Colo.	5,500,000	1,100,000	5	*				480,000	Sept.	1899	.48
118	Swansea, s. l	Utah.	500,000	100,000	5					241,000	Oct.	1899	.05
119	Tamarack, c	Mich.	1,500,000	60,000	25					5,910,000	June.	1899	4.00
120	Tomboy, g	Colo.	2,000,000	200,000	10					730,000	May.	1899	4.00
121	United, z. l., pref	Mo	1,000,000	40,000	25	*				20,000	July.	1899	.50
122	Utah	Utah.	1,000,000	100,000	10	*				179,000	Jan.	1899	.02
123	Victor, g	Colo.	1,000,000	200,000	5	*				1,155,000	Dec.	1898	.50
124	Vindicator, Cons. g	Colo.	1,500,000	1,015,000	1					253,750	July.	1899	.05
125	War Eagle, Cons	B. C.	2,000,000	1,750,000	1					414,000	Sept.	1899	.01½
126	Wolverine, c	Mich.	1,500,000	60,000	25	180,000	Mar.	1895	1.00	270,000	Oct.	1899	1.50
127	Yellow Aster, g	Cal	1,000,000	100,000	10	*				253,789	Sept.	1899	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l	Utah.	$100,000	100,000	$1	$3,333	Nov.	1895	.01½
2	Alliance, g. s. l	Utah.	150,000	150,000	1	200,000	Dec.	1895	.10
3	Allouez, c	Mich.	2,500,000	100,000	25	1,520,937	June.	1894	1.00
4	Alpha Cons., g. s	Nev.	105,000	105,000	1	319,200	Aug.	1899	.03
5	Alta, s	Nev	216,000	108,000	2	3,675,710	June.	1899	.05
6	Alta	Utah.	750,000	750,000	1	938	Mar.	1899	.00½
7	American Quartz, g	Cal	1,000,000	100,000	10	1,000	Feb.	1897	.01
8	Anchor, g. s. l	Utah.	1,500,000	150,000	10	560,000	Aug.	1803	.20
9	Andes, g	Nev.	300,000	100,000	3	1,305,000	June.	1899	.05
10	Arnold, c	Mich.	1,500,000	60,000	25	180,000	Jan.	1899	3.00
11	Baliol, g	Cal	1,000,000	100,000	10	55,000	Mar.	1898	.30
12	Belcher, s. g	Nev.	312,000	104,000	3	3,535,500	Aug.	1899	.10
13	Belle Isle	Nev.	10,000,000	100,000	100	240,371	July.	1896	.10
14	Benton Con. s	Nev.	10,800,000	108,000	100	587,023	June.	1897	.25
15	Best & Belcher, g. s.	Nev.	302,400	100,800	3	2,609,803	Aug.	1899	.10
16	Bogan	Utah.	1,250,000	125,000	10	26,875	Dec.	1897	.01½
17	Boston & Cp. Ck., g	Colo.	400,000	200,000	2	20,000	Aug.	1898	.10
18	Brunswick Cons., g	Cal	500,000	500,000	1	160,000	July.	1897	.03
19	Bullion, s. g	Nev.	100,000	100,000	1	3,125,000	May.	1899	.05
20	Caledonia	Nev.	300,000	300,000	3	3,210,000	Nov.	1897	.10
21	Centennial, c	Mich.	2,500,000	100,000	25	460,000	Mar.	1898	3.00
22	Central Eureka, g	Cal	4,000,000	400,000	10	135,942	Sept.	1899	.03
23	Challenge Cons, s.g.	Nev	150,000	50,000	3	438,000	Aug.	1899	.10
24	Chollar, g. s	Nev.	336,000	112,000	3	2,076,600	Aug.	1899	.15
25	Confidence, g. s	Nev.	74.880	24,960	3	545,118	May.	1899	.20
26	Con., Cal. & Va	Nev.	540,000	216,000	2½	784,000	Oct.	1899	.25
27	Cons. Imperial, g. s.	Nev.	500,000	500,000	1	2,251,000	July.	1899	.01
28	Con. New York	Nev.	100,000	100,000	1	160,500	Nov.	1898	.03
29	Crown Point, g. s	Nev.	300,000	100,000	3	2,980,000	May.	1899	.10
30	Dalton, s. l	Utah.	2,500,000	500,000	5	58,750	April.	1899	.01
31	Dexter	Nev.	1,000,000	200,000	5	38,000	Apr.	1898	.15
32	Diamond Con	Utah.	1,000,000	200,000	5	8,000	Mar.	1899	.04
33	Eagle, g. s	Cal	500,000	100,000	5	5,000	Dec.	1896	.05
34	Eagle, g. s	Ore	1,000,000	100,000	10	6,000	Oct.	1898	.01½
35	Emerald	Utah	300,000	300,000	1	3,000	Oct.	1898	.00½
36	Eureka Cons., g. s. l	Nev.	1,000,000	50,000	20	590,000	Oct.	1899	.10
37	Eureka Con. Drift, g.	Cal	500,000	500,000	1	182,500	Sept.	1899	.00½
38	Exchequer, g. s	Nev.	1,000,000	100,000	1	1,020,000	Dec.	1897	.05
39	Florence	Utah.	1,000,000	200,000	5	1,000	June.	1899	.00¼
40	Four Aces	Utah.	250,000	250,000	1	5,000	Mar.	1898	.01
41	Galena	Utah.	1,000,000	100,000	10	10,000	Oct.	1898	.10
42	Geyser, s. l	Colo.	5,000,000	500,000	10	1,225,000	July.	1899	.10
43	Gold Belt, g. s	Utah.	500,000	500,000	1	3,012	July.	1896	.00½
44	Gold Coin	Colo.	1,000,000	200,000	5	10,000	Mar.	1899	.05
45	Golden Eagle, g	Nev.	400,000	400,000	1	4,000	April.	1899	.01
46	Golden Fleece Grav. g	Cal	130,000	130	1000	56,260	Mar.	1897	2.00
47	Gold & Silver Carb	Utah.	500,000	500,000	1	2,500	Mar.	1899	.00½
48	Gould & Curry	Nev.	324,000	108,000	5	4,641,350	Oct.	1899	.15
49	Granite Hill, g. s	Cal	500,000	100,000	5	124,000	June.	1899	.03
50	Great Eastern, g	Utah.	1,500,000	300,000	5	6,500	July.	1899	.00½
51	Great Western, q	Cal	5,000,000	50,000	100	75,520	May.	1899	.15
52	Hale & Norcross, g. s.	Nev.	11,200,000	112,000	100	5,716,280	May.	1899	.10
53	Head Center Con., s. g	Ariz.	5,000,000	200,000	25	25,125	Mar.	1899	.20
54	Horse Shoe Bar Cons.	Cal	6,000,000	60,000	100	85,800	Jan.	1899	.05
55	Joe Bowers, Ext. gcls.	Utah.	112,000	450,000	¼	9,000	July.	1899	.01
56	Julia Con	Nev.	110,000	110,000	1	1,498,800	Jan.	1899	.03
57	Jupiter, g	Cal	2,000,000	20,000	100	80,000	Feb.	1898	.20
58	Justice, g. s. c	Nev	210,000	105,000	2	3,662,500	Aug.	1899	.10
59	Kentuck	Utah.	600,000	300,000	2	30,000	Aug.	1898	.10
60	Kentuck Cons., s	Nev.	105,000	105,000	1	125,300	June.	1898	.05
61	Lacrosse, g	Colo.	1,000,000	100,000	10	*			
62	Little Pittsburg	Utah.	2,000,000	400,000	5	21,000	June.	1899	.00¾
63	Lower Mammoth	Utah.	150,000	150,000	1	22,500	June.	1899	.05
64	Lucky Bill	Utah.	300,000	120,000	2.50	56,400	June.	1898	.01½
65	Marguerite, g	Cal	500,000	50,000	10	85,000	Aug.	1899	.10
66	Marina Marsicano, g.	Cal	1,000,000	100,000	10	49,360	June.	1899	.05
67	May Day	Utah.	100,000	400,000	¼	4,000	Jan.	1899	.00½
68	Mayday, g. s	Cal	50,000	50,000	1	10,000	July.	1899	.10
69	Mayflower, g	Cal	1,200,000	60,000	20	6,000	Sept.	1898	.05
70	Merced, g	Cal	2,250,000	150,000	15	200,000	July.	1896	2.00
71	Meteor, s. l	Utah.	600,000	300,000	2	9,734	Sept.	1899	.01
72	Mexican, g. s	Nev.	302,400	100,800	3	2,268,800	June.	1899	.10
73	Montreal	Utah.	2,500,000	250,000	10	30,625	April.	1899	.05
74	Mt. Diablo s	Nev.	5,000,000	50,000	100	150,000	Dec.	1898	.10
75	Morning Star, s	Nev.	1,500,000	150,000	10	32,500	Dec.	1898	.00½
76	Nashville, g	Cal	115,000	11,500	10	2,000	Sept.	1898	.17
77	North Banner, g. s	Cal.	1,000,000	100,000	10	21,794	Oct.	1896	.02
78	North Belle Isle, s	Nev.	10,000,000	100,000	100	523,074	July.	1896	.10
79	No. Gould & Curry	Nev.	100,000	100,000	1	375,000	Dec.	1898	.10
80	Northern Light, g	Utah.	2,000,000	400,000	5	80,000	July.	1898	.10
81	Occidental Cons g s.	Nev.	300,000	100,000	3	514,179	Sept.	1899	.05
82	Ophir, g. s	Nev.	324,000	108,000	3	4,635,968	Aug.	1899	.15
83	Opohonga	Utah.	200,000	100,000	2	1,500	June.	1898	.01
84	Oro Cache, g. s	S. D.	1,250,000	250,000	5	6,250	July.	1893	.00½
85	Osceola, g	Cal	10,000,000	100,000	100	10,924	Sept.	1898	.01
86	Overman, g. s	Nev.	230,400	115,200	2	4,141,110	Sept.	1899	.05
87	Peer, s	Ariz.	10,000,000	100,000	100	215,000	July.	1894	.05
88	Peerless, s	Nev.	10,000,000	100,000	100	410,000	July.	1894	.05
89	Pine Hill, g	Cal	1,000,000	100,000	10	30,000	July.	1897	.05
90	Potosi, g. s	Nev.	336,000	112,000	3	2,185,250	Sept.	1899	.15
91	Powning	Cal	750,000	75,000	10	2,800	Aug.	1899	.01
92	Red Mountain, s	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
93	Rescue, g	Nev.	100,000	10,000	10	5,500	Feb.	1899	.05
94	Reward, g	Cal	64,000	64,000	1	63,680	Nov.	1898	.02
95	Ridge, c	Mich.	500,000	20,000	25	239,939	Feb.	1897	1.00
96	Savage, g. s	Nev.	280,000	112,000	2½	7,321,000	Sept.	1899	.10
97	Scorpion, s	Nev.	100,000	100,000	1	445,000	Dec.	1897	.05
98	Seg. Belcher & Mg s.	Nev.	200,000	100,000	2	373,000	June.	1899	.05
99	Sevier, g. s	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
100	Shower Con	Utah.	2,000,000	400,000	5	8,000	Aug.	1899	.02
101	Sierra-Nevada, g. s.	Nev.	300,000	100,000	3	6,721,919	Aug.	1899	.15
102	Silver Hill, s	Nev.	108,000	108,000	1	2,220,200	May	1898	.05
103	Silver King, s	Ariz.	10,000,000	100,000	100	490,000	Aug.	1899	.25
104	Silver Queen, c	Ariz.	5,000,000	200,000	25	*			
105	Silver State, g	Colo.	700,000	700,000	1	*			
106	Silver State, s. g. l	Utah.	100,000	100,000	1	1,000	Sept.	1897	.00½
107	Siskiyou Con., s	Cal	2,000,000	200,000	10	46,000	April.	1898	.01
108	Snow Flake	Utah.	500,000	100,000	5	51,000	July.	1899	.02
109	South Fork Con	Utah.	50,000	50,000	1	5,000	Mar.	1898	.01
110	South Side	Mich.	1,000,000	40,000	25	4,000	Jan.	1899	.10
111	Star, g. s	Utah.	1,000,000	200,000	5	7,000	Feb.	1899	.03
112	Success	Utah.	30,000	300,000	0.10	9,750	Oct.	1899	.01
113	Sunbeam Cons	Utah.	250,000	250,000	1	73,125	Oct.	1899	.10
114	Tecumseh, c	Mich.	1,000,000	40,000	25	40,000	July.	1897	1.00
115	Temonj, g	Colo.	1,000,000	1,000,000	1				
116	Tetro	Utah.	300,000	300,000	1	30,000	Sept.	1899	.01
117	Triumph	Utah.	1,000,000	100,000	10	1,000	April.	1899	.01
118	Union Cons., g. s	Nev.	250,000	100,000	2½	2,648,000	Sept.	1899	.15
119	Utah Cons., s	Nev.	100,000	100,000	1	485,000	Sept.	1899	.05
120	Valeo	Utah.	200,000	200,000	1	10,000	May.	1899	.05
121	Victory, g. s	S. D.	1,250,000	250,000	5	2,625	Nov.	1899	.00½
122	Watt Blue Gravel, g.	Cal	1,100,000	100,000	10	58,000	May.	1899	.03
123	Work, g	Colo.	1,250,000	1,250,000	1				
124	Yankee Girl	Utah.	250,000	250,000	1	5,000	April.	1899	.02
125	Yellow Jacket, g. s	Nev.	360,000	120,000	3	5,305,000	April.	1899	.15
126	Yellow Jacket	Utah.	300,000	300,000	1	1,500	Dec.	1897	.00½

G., Gold. S., Silver. L., Lead. C., Copper. B., Borax. * Non-assessable. This table is corrected up to Sept. 25 Correspondents are requested to forward changes or additions.

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

Abrasives—	Cust. Meas.	Price.
Carborundum, f.o.b.		
Niagara Falls grains..	lb.	$0.10
Powd., F. FF. FFF..	"	.08
Minute No. 1	"	.15
No. 15	"	1.00
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best...lg. ton		18.50
Levant, "		22.00
Naxos (Greek) best "		32.00
Pumice Stone, Am. powd.	lb.	.01¾@.02
Italian, powdered	"	.01¼
Lump, per quality	"	.04@.40
Rottenstone, ground	"	.02½@.03
Lump, per quality	"	.05@.14
Rouge	"	.17@.30
Tripoli, prepared	sh. ton	20.00
Acids—Acetic, 30% pure	100 lbs.	3.20
30% ch. pure	"	6.90
80% pure	"	9.50
Benzoic, English	oz.	.09@.09½
German	lb.	.46@.47
Boracic, pure cryst	"	.11
Powdered	"	.11½@.11¾
Carbolic, cryst. in drums	"	.16
Carbonic, liquid	"	.15
Chromic, crude	"	.23
Chem. pure	"	.50
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure.	"	.08
Hydrofluoric, 30%	"	.03@.04½
48%	"	.05@.06
Best	"	.25
Nitric, chem. pure	"	.10
Sulphuric, 98%	"	.02
Chem. pure	"	.07
Tartaric, cryst	"	.32
Powder	"	.32½
Alcohol—Grain	gal.	2.44@2.46
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.75
Ground	"	1.85
Chrome, com'l	"	3.50
Aluminum—		
Nitrate	lb.	1.50
Oxide, com'l, common	"	.06½
Best	"	.20
Pure	"	.80
Hydrated	"	.05
Sulphate, pure	"	.02
Com'l	"	1.25
Ammonia—Aqua, 16°	"	.04
18°	"	.04½@.05½
20°	"	.05@.06
26°	"	.07@.08
Ammonium—Bromide, p'r'd	"	.52@.53
Carbonate lumps	"	.08@.08¼
Powdered	"	.09@.09¼
Muriate, gran., white	"	.09½
Gran. ch. p.	"	.09½
Lump	"	.08½
Gray	"	.08
Nitrate, white, pure (99%)	"	.10¼
Phosphate, com'l	"	.12@.15
Chem. pure	"	.60
Antimony—Glass	"	.30@.40
Needle, lump	"	.05½@.06
Powdered, ordinary	"	.05¾
Best	"	.08½
Oxide, com'l white, 95%	"	.09½
Com'l white, 99%	"	.10½
Com'l gray	"	.07@.08
Sulphuret, com'l	"	.16
Arsenic—White	"	.04½@.05
Red	"	.07¾@.08½
Asphaltum—		
Ventura, Cal	sh. ton	32.00
Cuban, refined	lb.	.04½
Common	"	.02
Egyptian, refined	"	.06½
Trinidad, refined	"	.01½
San Valentino	lg. ton	16.00
Gilsonite, Utah, ordinary	lb.	.03¼
Select	"	.03¾
Barium—Carbonate, Lump, 80@90%	sh. ton	25.00@27.50
92@98%	"	26.00@29.00
Powdered, 80@90%	lb.	.01¾@.02
Chloride, com'l	"	.02¼
Chem. pure cryst	"	.05
Nitrate, powdered	"	.06
Oxide, com'l, hyd. cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd.	"	.27
Sulphate	"	.01
Barytes—Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
Prime White	"	18.00@20.00
Floated	"	19.00@20.00
Bauxite—Ga. & Ala, f.o.b. cars, first grade	lg. ton	5.00
Second grade	"	3.50
Benzole—90%	gal.	1.00@1.10
Bismuth—Oxide, hydr.	lb	2.25@2.56
Subnitrate cryst.	oz.	.09@.10
Bitumen, "B"	lb.	.03¼
"A"	"	.05
Bone Ash	"	02¾@.03¼
Borax—Cryst. and pow'd	"	.07@.07½
Calcined	"	.22
Bromine—Bulk	"	.45
Cadmium—Metallic	"	1.50@2.00
Sulphide	"	2.00@3.00
Sulphate	"	2.00@2.50
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	lb.	.03@.04

Calcium—	Cust. Meas.	Price.
Acetate, pure white	100 lbs.	$1.00
Gray	"	1.25@1.30
Brown	"	.80@.85
Carbonate, ppt	lb.	.05
Chloride, com'l	100 lbs.	.90@1.00
Best	"	1.90@2.00
Sulphite	lb.	.05
Cement—		
Portland, Am., 400 lbs.	bbl.	1.50@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.90
Sand cement, 400 lbs.	"	1.55@1.95
Slag cement, imported.	"	1.65
Ceresine—		
Orange and Yellow	lb.	.10½
White	"	.12½
Chalk—Lump, bulk	sh. ton	2.15@2.25
Precipitated	lb.	.04@.04½
French	100 lbs.	.30@.35
Chlorine—Liquid	lb.	.30
Water	"	.15
Chrome Ore—		
(50% chrome) ex ship	lg. ton	22.00
Sand	"	35.00
Clay, China—Am. com., ex-dock, N. Y.	sh. ton	7.50
Am. best, ex-dock, N. Y.	"	8.50
English, common	lg. ton	11.00
Best grade	"	17.00
Fire, ground, f.o.b, Jersey City, N. J.	sh. ton	4.00@5.00
Slip Clay	"	6.00
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide—Black	"	1.76
Gray	"	2.25
Smalt, blue ordinary	"	.20
Best	"	.30
Chem. pure	"	5.00
Copperas	100 lbs.	.60@.62½
Copper—Carbonate	lb.	.18@.20
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide	"	.19@.20
Cream of Tarter—crys.	"	.23½
Granulated	"	.24
Powdered	"	.24
Cryolite	"	.06½
Explosives—		
Blasting powder, A	"	.10¾
Blasting powder, B	"	-05@.05¾
"Rackarock," A	"	.25
"Rackarock," B	"	.18
Judson R.R. powder	"	.10
Dynamite, (40% nitro-glycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.23
Glycerine for nitro (32 2-10° Be.)	"	.11@.11¼
Nitro-Benzole	"	.14
Feldspar—Ground	sh. ton	6.50@7.75
Flint—(See Silica).		
Fluorspar—Am. lump	"	8.00
Gravel	"	7.00
Crushed	"	6.50
Ground	"	15.00
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered	"	.85
Ganister Rock	lg. ton.	6.50
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)	sh. ton	8.00
Fertilizer	"	7.00
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—Ground.		
American, best	"	20.00
French	"	37.50
German	"	40.00
Iodine—Crude	100 lbs.	2.45
Resublimed	"	2.85
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01¼@.01¾
True	"	.04
Oxide, pure copperas col	"	.05@.10
Purple-brown	"	.02
Venetian red	"	.01@.01½
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kryolith—(See Cryolite.)		
Lead—Acetate, white	lb.	.07¼
Com'l, broken	"	.06¾
White, gran.	"	.08½
Nitrate, com'l	"	.06½@.06¾
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.90
Finishing	"	1.00
Magnesite—		
Crude, lump (95%) Greece	lg. ton	7.25
German (85%)	"	12.00
Calcined, 600° C. (Greece)	"	15.00
1,000° C. (Greece)	"	18.50
3,000° F. (Greece)	"	21.00
Domestic, soft	sh. ton	12.00@15.00
Bricks, all magnesite	M.	185 00
Magnesite and chrome.	"	226.00
Magnesium—		
Metallic, ingots (Ger)	kg.	5.95@6.90
Powdered (Ger.)	"	6.19
Ribbon or wire (Ger.)	"	10.00
Carbonate, light, fine pd	lb.	.03¾@.04
Blocks	"	.08@.09
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Manganese—Crude, pow'd 73@75% binoxide	"	.01¼@.01½
75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.02¾@.05½
Carbonate	"	.16@.20

Manganese—	Cust. Meas.	Price.
Chloride	lb.	.04
Ore, 50%	unit	.22@.22½
Marble—Flour	sh. ton	5.50@8.00
Mercury—Bichloride	lb.	.59@.60
Bisulphate	"	.41
Mica—N. Y. gr'nd, coarse	"	.04@.05
Fine	"	.06@.08
Sheets, 1¼x3 in	"	.60
8x10 in	"	13.00
Mineral Wool—		
Slag, ordinary	100 lbs.	.90
Selected	"	1.40
Extra	"	3.00
Rock, ordinary	sh. ton	32.00
Selected	100 lbs.	2.50
Extra	"	5.00
Monazite—92%	sh. ton	140.00
Nickel—Oxide, bl'k No. 1	lb.	1.00
Black No. 2	"	.60
Green, No. 1	"	1.00
No. 2	"	.60
Oils—		
Black, reduced 29 gr.:		
25@30 cold test	gal.	.10½@.11
15, cold test	"	.11½@.12
Zero	"	.12½@.13½
Summer	"	.10@.10½
Cylinder, dark steam ref	"	.09½@.14½
Dark filtered	"	.12½@.17½
Light filtered	"	.14½@.17
Extra cold test	"	.22½@.26½
Gasolene, 86° @ 90°	"	.16@.18
Neutral filtered, lemon, 33@34 gr	"	.13@.18½
White, 33@34 gr	"	.21@.23
Wool grade, 32 gr	"	.11@.14
Naphtha, 62°	"	.12¾
Deodorized, 76°	"	.13¾
Paraffine, high viscosity	"	.22½@.27½
23½@24 gr	"	.10¾@.11
25 gr	"	.09¾@.10
28 gr	"	.09@.09¼
30@32 gr	"	.08¾@.09
Red No. 1	"	.10¼@.10¾
No. 2	"	.09¾@.10¼
Linseed, domestic raw	"	.44
Boiled	"	.46
Calcutta, raw	"	.60
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.06@.08
Paints and Colors—		
Benzine, Sumatra	"	.35@.40
Marbled	"	.27@.28
Chrome green, common	"	.05@.06
Extra	"	.12@.15
Chem. pure	"	.20@.25
Super	"	.10@.12
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack—Com'l	lb.	.03@.05
Refined	"	.08@.10
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd	"	.05½@.05¾
English flake	"	.07¾@.08
Metallic, brown	sh. ton	16.00@20.00
Red	"	16.00@20.00
Ocher, Am. common	"	9.25@10.00
Best	"	21.25@25.00
Dutch, washed	lb.	.04¾@.05
French, washed	"	.01¼@.02½
Orange mineral, Am	"	.07¾@.08
Foreign, as to make	"	.09@.10¾
Paris green, pure	"	.11½@.12
Red lead, American	"	.05¼@.05¾
Foreign	"	.07½@.08
Shellac, "D. C."	"	.26
Native	"	16
Turpentine, spirits	gal.	.44½@.45
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver, bulk	"	.64
Chinese	"	.80@.90
English, imported	"	.70
White lead, Am., dry	"	.05@.05½
In oil	"	.05½@.06½
English, in oil	"	.07½@.08¼
Whiting, common	100 lbs.	1.45
Gilders	"	.50
Zinc white, Am. ex. dry	lb.	.04½@.05
American, red seal	"	.07½@.08
Green seal	"	.08@.08¼
Foreign, red seal, dry	"	.07¾@.08¾
Green seal, dry	"	.08¾@.09¾
Foreign, red seal, in oil	"	.10¼@.11¼
Green seal, in oil	"	.11¾@.12½
Plumbago—		
German, lump	100 lbs.	1.50@2.00
Pulverized	"	2.25
Ceylon, pulv. common	lb	.03¾
Best	"	.05@.08
Italian, pulv	"	.01¼
Potash—Caustic, ord	"	.05@.05½
Elect. (90%)	"	.05¾@.07
Potassium—		
Metallic, in balls (Ger)	kg.	17.85
Bicarbonate cryst	lb.	.08½
Powdered or gran	"	.12
Bichromate	"	.09¼
Bromide	"	.46@.47
Carbonate	"	.03¾@.03½
Chromate	"	.35
Cyanide (98@99%)	"	.28@.29
Ferro-cyanide	"	.19@.20
Iodide	"	2.15
Permanganate, pure cr.	"	.14@.15
Silicate	"	.06
Prussiate, yellow	"	.19@.20
Red	"	.38
Sulphide, com'l	lb.	.10

	Cust. Meas.	Price.
Quartz—(See Silica).		
Rosin—Common	bbl.	$1.25
Best	"	3.50
Salt—N.Y. com. fine abt. 380 lbs	bbl.	.70
N. Y. agricultural	sh. ton	1.50
N. Y. coarse	"	2.30
N. Y. dairy and table	"	2.90
Saltpeter—Crude	100 lbs.	3.50
Refined	"	4.25@5.50
Samarskite	lb.	1.00
Silica—		
Ground quartz, ord	sh. ton	6.00@8.00
Best	"	12.00
Lump quartz	"	2.50@4.00
Fire bricks (Blue Welch)	M.	35.00
Silver—Chloride	oz.	.65
Nitrate	"	.41
Oxide	"	.85@1.10
Sodium—Metallic	lb.	.07¾
Acetate, com'l	"	.03½
Bichromate	"	.07¾
Bisulphite, com'l	"	.01¾
Bromide	"	.49@.50
Chlorate, com'l	"	.09¾@.10
Hyposulphite	100 lbs.	1.60@1.70
Nitrite	lb.	.07½@.07¾
Peroxide	"	.45
Phosphate	"	.03
Triphosphate	"	.04
Silicate, conc	"	.01@.01½
Sulphate, gran., puri'd	"	.03
Sulphide	100 lbs.	1.75
Sulphite	lb.	.02½
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Nitrate	"	.07¾
Sulphur—Roll	100 lbs.	2.00
Flour	"	2.20
Flowers, sublimed	"	2.37½
Talc—N. C No. 1	sh. ton	15.00@15.50
No. 2	"	10.00@12.00
N. Y., Fibrous	"	8.00@9.00
French	100 lbs.	1.10@1.25
Italian	"	1.50@2.00
Tar—Coal	bbl.	3.00
Tin—Chloride	lb.	.18@.15
Crystals	"	.24@.26
Muriate	"	.08
Oxide, white, ch. pure	"	.48@.50
Uranium—Oxide	"	1.80@2.00
Zinc—Metallic, ch. pure	"	.09@.10
Carbonate	"	.15
Chloride	"	.06@.08
Dust	"	.07@.07¼
Sulphate	"	.02½

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5 71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N Y.)	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.50
Calcium—Electrol	"	4.28
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	21.00
Chromium—Fused	kg.	5.95
Pure powder 95%	"	1.79
Chem. pure cryst	grm.	.21
Cobalt—(98@99%)	kg.	5.35@5.71
Pure	"	30.94
Didymium—Powder	grm.	3.81
Nitrate (N. Y.)	oz.	4.60
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Gallium	grain	9.52
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Indium	grm.	4.05
Iridium—	"	2.38
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Molybdenum—Powder	kg.	2.62
Fused, electrol 95%	100 grms.	15.47
Niobium	grm.	3.81
Osmium	"	.95
Palladium	"	.95
Rhodium	"	2.87
Rubidium—Pure	"	4.76
Ruthenium—Pure powd	"	2.38
Selenium—Com'l powder	kg	30.94
Sublimed powder	"	40.46
Sticks	"	33.32
Silicium—Amorphous	100 grms.	2.87
Crystals, pure	"	5.95
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p. sticks	100 grms.	11.90
Powder	"	9.52
Thallium	kg.	23.80
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	5.00@5.50
Titanium	grm.	.71
Uranium	"	.48
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused	100 grms.	23.80
Powder, 95@98%	kg.	1.90
Chem. pure	"	6.42
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	4.00
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71
Nitrate (N. Y.)	oz.	1.00

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Sept. 19th. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.